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Selling Foreign Funds at a Sacrifice

Disastrous Effect of Ignoring the Purchasing Power of European Money—How the Exchange Situation Can Be Helped

—BY STERLING H. BUNNELL*

A PROGRESSIVE fall in the value of the moneys of European countries in exchange for the American dollar has been under way. The extent of the movement was entirely unforeseen by the financial leaders of the world and so has taken business men by surprise and already worked great havoc, with perhaps greater consequences to come. Because the British pound sterling had been backed by an unbroken promise to pay gold on demand, the world came to conceive it as a fixed universal standard of value and formed no conception of the effect of the suspension of the promise early in the war.

But strangest of all misconceptions is the present widespread idea in this country that the fall in foreign exchange has been due to some intention or fault of "the bankers," or "Wall Street," or the British Government, or some other agent than the inexorable law of supply and demand. With this illusion, most American manufacturers continue to demand dollar payment for their goods to be exported, under the mistaken impression that by firmness and concerted action they will eventually force the supposed conspirators in depressing the value of foreign money to release their grip and allow exchange to return to the good old values. But as no such conspiracy exists, or could be effective, the continual demand for dollars and dollars only in payment for our exported goods is destroying the market value of the foreign property and foreign securities owned in America, by the continued depreciation in exchange values in which their equivalent in dollars is measured.

Money Limited to Its Habitat

Money, the circulating medium, is useful as currency only when at home in its own country. An ancient Roman coin may be salable as a curio for the price of many days' food and lodging, but it cannot be spent as money. If an American maker of plows goes to England and sells a hundred of them for 200 pounds sterling, although he can use the proceeds to pay his hotel bills in London for several weeks, or to buy English clothes or other goods, neither he nor anyone else can make that English money legal tender outside of English dominion. If carried into another country the money becomes only interesting pieces of paper which have no value except to some person who will carry them back and use them in British territory.

If the fact is once fixed in mind that money, like law, is not valid outside the boundaries of its own country, it will be evident why the banker can affect

the value of foreign money no more than he can affect the cost of automobiles or pickaxes. The banks do exert a slight influence on manufacturing costs by varying their interest charges on borrowed funds, and they do affect foreign trade to the same slight extent by varying interest or discount rates on money borrowed to finance foreign shipments. But the purchasing power of money exists normally only in the country of issue, and is quite outside of the power of banks to alter except indirectly and slightly by interest rates. The banker does not usually buy or sell foreign money, except in the small sums that people carry in their pockets when traveling, and the amount so involved is a mere trifle compared with the vast totals of international trade.

The disturbance in exchange is due to nothing else than that Americans who sell goods abroad do not spend the proceeds in the countries where the money is good. Whether this is because there is nothing abroad worth buying, or because the American finds it too much trouble to make selections and ship the goods home, or for some other reason, makes no difference in the result. The bushel of American wheat sells for kroner in Norway, marks in Germany, francs in France, lire in Italy and shillings in Great Britain; but not one of these moneys means anything to the American farmer, or is of any direct use to the shipper of the wheat. In fact, rather than be bothered with spending the money where it is good, the American insists that the foreign purchaser shall swap it at any old price for money that can be spent here.

Exchange and Its Functions

Now, to turn attention to the ordinary operation of foreign exchange as it grew up and was carried on for many decades up to the present time, note that the agencies engaged in this operation should be called, strictly speaking, exchange brokers rather than bankers, and that they bought and sold mostly promises to pay, but very little currency. When a bill of goods was shipped abroad, the shipper in substance sold the account to an exchange broker or bank which paid in domestic currency, less a discount, and later collected foreign currency, plus interest. The exchange broker or banker of course depended upon being able to buy and sell just as many accounts in each direction, going and coming, so that he could use his foreign money abroad and his domestic money at home. The world's international commerce grew up on this basis of an equal exchange between countries, made up of goods and traveling expenses and services such as passenger

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and freight charges on ships, and capital investments by one country in another, with finally the shipping of a little gold or silver now and then to settle up the remaining small inequalities.

How Europe Pays

At present, with regard to Europe, America has supplied goods and labor to the value of many billions of dollars, very little of which has been paid for in goods or services, because all Europe was putting every ounce of effort into the war. At first we took payment in stocks and bonds of our own railroads and industries, which securities Europe owned up to the beginning of the war. Then we bought European stocks and properties; loaned money by buying European bonds, and later supplied goods to the value of some \$14,000,000,000 which our own Government borrowed from our citizens for the purpose. The ordinary equal exchange of goods and services was completely disrupted by war and its consequences, so that it is a fact to-day that the exchange brokers have done business in one direction only, advancing an enormous total in dollars to American sellers against bills for goods shipped, and taking foreign moneys for the goods on arrival, until bank accounts in Europe are swollen with idle funds in foreign moneys, while credit in America is strained to the limit by the huge loans made on export goods, many of which have not been taken up by foreign purchasers, but remain in storage here and abroad.

No wonder exchange bankers are asking enormous prices for handling further transactions. Their only remaining resource is to use their European funds in buying European city bonds and other securities at a discount and search out Americans who are willing to buy at half price or less these securities on the chance of a big profit in the course of a few years. Advertisements of such offers to investors are on the financial pages every day.

Virtually, if French city bonds are now selling at 30 per cent of their par value in dollars, the American exporter who must have dollars for his goods is asking three and one-third times the normal value of his goods to the French buyer; because the only way the Frenchman can get the dollars to pay for the goods is to sell his French securities to an American at 30 per cent of their par value. Trade under such conditions is almost impossible. The commerce reports show the rapid shrinkage which has taken place since the big drop in exchange in December, 1919. Trade would be assisted very much if the American shipper would undertake to receive his pay in foreign goods and sell these in America. A bushel of wheat shipped into France has more nearly its prewar value in yards of silk than in French currency, and the silk sells readily in America.

How Exchange Can Be Helped

Nothing but an equal exchange of trade can bring currencies back to par. The huge international loans must some day be adjusted; but that will not help exchange, unless the daily and yearly intercourse of trade and services between nations is equalized. As that will take years, exchange will be disturbed for years. No one manufacturer, nor even all the manufacturers of America, can affect the present adverse exchange rates appreciably by any kind of concerted action. But trade can be successfully carried on regardless of exchange by any man who will arrange to receive in return for his American goods, foreign goods of equal value in the foreign country, and to dispose of these goods in America to reimburse himself in dollars. Through centuries of human activity from the time when Egyptian traders carried their wares up the valleys of southern Europe to exchange them with the barbarians of the Late Stone Age, to the days of the clipper ships and the China trade, there was no "for-

eign exchange" between currencies, yet enormous trade was carried on, and great profits made in the business. The same methods must be put in use to-day if our business is to go on successfully.

The trade balances of the European countries are at last beginning to improve, but their imports are so far in excess of exports that equality can not be reached for a long time yet. Efforts are being made more or less effectively by the European governments to decrease the import of unnecessary goods and increase the export of all things of value which can be spared. It is highly important to our own country, which has strained its credit in supporting Europe in the world war, that the efforts of European financiers to reorganize production so that their countries can pay their debts shall be supported.

The Norwegian Steel Industry

Serious efforts were made in Norway during the war to develop the iron industry and several plants were erected, but at the time of the armistice some of these were not completed, while others, that had begun to operate, had to shut down. The following list of Norwegian iron and steel plants is given by *Stahl und Eisen*, but some of them have not yet started work, while others have shut down:

Pig Irons: Tinfos Co. (electric furnaces); Ulefos Co. (electric furnaces); Nes Jernverk (charcoal furnaces).

Cast Steel Ingots: Christiania Spigerverke (open-hearth furnaces); Christiania Steel Works (open-hearth and electric furnaces); Stavanger Steel Works (open-hearth and electric furnaces).

Steel Castings and Forgings: Christiania Steel Works; Stavanger Steel Works.

Rolled Products: Nes Jernverk, steel bars; Christiania Spigerverke, bar iron and wire; Norsk Rolling Mills. This company started operations in November, 1918, but was shut down at the beginning of 1919. It has four hot-rolling mills for thin sheets and tin-plate.

The Christiania Steel Works has a plant in course of erection for rolling sheets, but owing to financial difficulties building operations have been suspended.

The Hamar Steel Works, which were built during the war, comprise a steel mill with open-hearth furnaces and rolling mills for medium and thin sheets and wire. The works are to start operation early in 1920.

The Stavanger Steel Works have new rolling mills for tool steel and are expected to start early in 1920.

The erection of a large plant at Nanvik, the Swedish iron-ore port, is planned. It will comprise blast furnaces and steel and rolling mills for all kinds of products. Building operations are proceeding but are hampered by the lack of capital.

The Norwegian iron industry is as yet very insignificant, although there is a considerable market within the country, mostly among the numerous shipbuilding yards. The difficulty of obtaining support from private investors is the greatest drawback, says the London *Ironmonger*, but the government is anxious to create domestic steel plants, and last year was prepared to grant loans on favorable terms. The subventions asked by various works, however, amounted to 60,000,000 kr. and the Storting refused its support at the time and postponed the matter until the present year. The Socialists in particular object to any support to private undertakings and are in favor of nationalizing the existing or the proposed new works.

The State Cartridge Works at Ranfoss, however, have already received grants for building large rolling mills for copper and brass sheets, and this plant will presumably be extended during the next few years.

The government puts many restrictions upon the erection of new works, among them that no foreign capital be invested, that all the directors shall be of Norwegian nationality and that no foreigners shall be employed. Coal is wanting, but there is, however, an abundance of water power, and the blast furnaces as well as the steel and melting furnaces of new mills will be electrically heated. The power stations supply current at from 40 to 60 kroner per kw. hr. per yr. All that seems to stand in the way of the construction of electric iron and steel plants is the difficulty in finding the right men and the necessary capital in the country.

Design of Open Hearth Furnaces*

Question of the Regenerator Brickwork—Heat Absorption, Temperature Gradient and Resistance of Deposits

—BY A. D. WILLIAMS—

THE time factor has a definite bearing on the thickness of the checker brick. This is shown by the curves of Fig. 18. These curves were plotted for a fire clay brick. For a silica brick or brick of other material the co-ordinates would be different, but the curves would be similar to those shown. These curves show the rise in temperature at the center line of a brick in per cent of the rise in temperature at the surface, when both faces of the brick are heated during various time intervals. In these curves the ordinates are given per cent values to permit their application to any initial temperature. These curves are computed by a formula developed from Fourier's conduction equation. They show that the rate of temperature rise at the center of the brick will vary according to the square of the thickness of the brick. These curves apply equally to the cooling period. A curve showing the complete heating and cooling cycle will resemble the hysteresis loop, which shows the heating effect of cyclic magnetic changes upon an iron core.

The firebrick makers in this country list a special checker brick, 10.5 x 4.5 x 4.5 in. (265 x 115 x 115 mm.), and a checker brick 2.9 x 2.75 x 2.75 in. (107 x 70 x 70 mm.), and some designers use 9-in. straights, which give a 2.5-in. (63-mm.) wall. With a 30-min. period between reversals, the temperature change on the central plane of these bricks may be approximated as follows:

Assuming that the initial temperature throughout the bricks is practically uniform, and the surface is heated through any temperature range for a period of 30 min. At the end of this period the temperature of the central plane will have increased to 59 per cent, 94 per cent and 96.5 per cent of the surface temperature, respectively, according to Fig. 18. So that the cooling cycle starts with an initial drop in temperature on the central plane of 41, 6 and 3.5 per cent, respectively.

Fig. 18 shows that the period of time required for these drops will be, respectively, 21, 3 and 2 min. During this period the portion of the brick between the center and the surface will be transmitting heat both toward the center and the surface of the brick.

In other words, the thinner the checker brick the higher its heat storage capacity as compared with the volume it occupies, the greater the amount of heating surface for the given weight of brickwork and the smaller the heat storage capacity per unit of surface. When the checker brick are too thin the heat gradient from top to bottom of the checker becomes a curve instead of a straight line. The brick, instead of working on the sloping portion of the curve, Fig. 18, work over on to the flat upper portion of the curve.

A great many of the formulas covering the heat transfer from one substance to another contain a factor which covers the velocity of flow of the gas or liquid which is absorbing or giving up heat to the stationary surface. For some reason or other there seems to be an impression that the higher the velocity

of flow the better. Undoubtedly there is a certain velocity of flow that will result in the maximum heat transfer per unit of heating surface, and in the case of properly designed heat transfer elements, be they regenerators, recuperators, steam boilers, etc., it is extremely probable that the natural convection currents will assume this velocity themselves. Higher velocities, as well as lower velocities, will reduce the rate of heat transfer. The higher velocities may be obtained by forcing the gas or liquid past the surface, when the velocity is too low, that is, when the heated gases are not carried away from the chamber above the regenerator, or the cooled gases cannot flow away from below the checkerwork, recirculation will take place in the form of convection eddy currents.

Concerning forced circulation, it is easy to conceive that a current of hot gas may pass a finite surface at such a high velocity that its temperature drop or loss of heat may be extremely small. In this case the rate of heat transfer will be very low per unit of surface. On the other hand, it may be conceived that the gas passes the heating surface so slowly that it loses practically all of its heat, and has a large drop in temperature. In both of these cases an inordinate amount of heating surface will be necessary. With the high velocity a very great length of surface will be required. With the low velocity an extremely wide surface will be required. Probably the best analogy to these conditions is supplied by the electrical circuit. A series circuit may have such a high resistance that its power transmission value will approximate zero. A multiple circuit may have such a low resistance that it forms a short circuit and its power transmission value will approximate zero.

The heat differential or temperature head necessary for the heat transfer is a factor concerning which there is considerable disagreement. There is the film theory of high surface resistance due to layers of gas adhering to the surface. Such data as are available indicate that a temperature drop of 300 deg. or more is necessary for gas to gas heat transfer. The curves of Fig. 19 were copied from a pamphlet, "The Flow of Heat Through Furnace Walls" (Bulletin No. 8, U. S. Bureau of Mines), by Ray and Kreisinger. The full line shows the fluctuation in the firebox temperature of the experimental furnace as indicated by a thermo couple and the dotted line gives the temperatures of a couple embedded in the brickwork 1 in. from the surface exposed to heat. It will be noticed that the brick temperatures lag behind the furnace temperatures and, due to the heat storage capacity of the brick, a smoother curve is obtained. The temperature gradient between the two curves includes the resistance of one inch of brick as well as any surface resistance which may exist, and this difference rarely exceeds 150 deg. This would seem to indicate that a heat differential of less than 300 deg. might be obtainable under good working conditions from gas to gas.

Blocking up of the checker work by dust deposits occurs progressively and a number of schemes have been tried for increasing the time between cleanouts. This dust collects upon the upper portion of the checker work and causes more trouble in the air checker than

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it does in the gas, for the reason that the gas usually enters the regenerators under pressure and this pressure can be increased to overcome increased resistance.

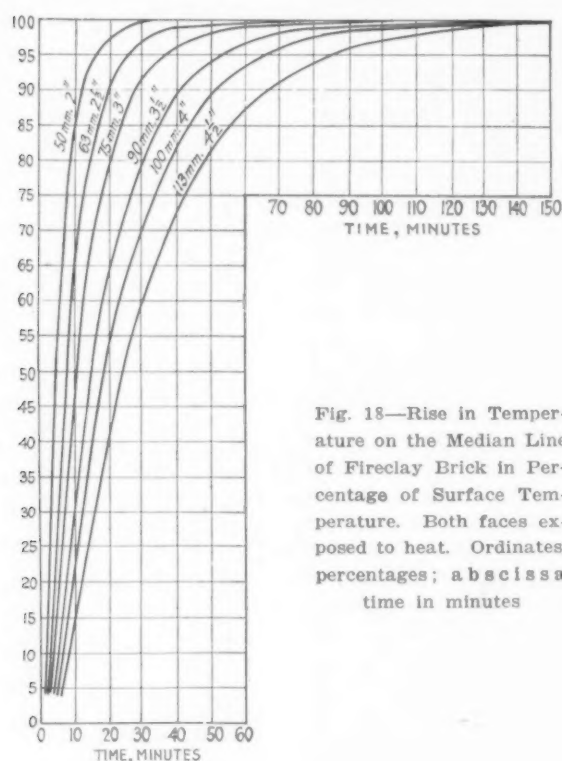


Fig. 18—Rise in Temperature on the Median Line of Fireclay Brick in Percentage of Surface Temperature. Both faces exposed to heat. Ordinates, percentages; abscissæ, time in minutes

The air, however, enters the checker under atmospheric pressure, and its flow is induced by the chimney effect caused by the heat it absorbs acting through a vertical height equal to the distance from the bottom of the checkerwork to the port. It naturally follows that increased resistance will have a considerable effect in reducing the air supply, and it is frequently necessary to put a fan on the air supply after 400 to 500 heats. Running the gas through the air checkers has been the subject of a patent, the idea being based upon the reducing action of the gas, but this deposit contains very little iron ore when there are adequate cinder pockets. The composition of this deposit at the Donetz-Jurjewka works was:

Composition of Deposit in Checkers

	Gas	Air
Additions and limestone, per cent.....	26.0	37.0
Furnace lining, per cent.....	0.8	1.5
Cinder, per cent.....	28.2	16.0
Silica brick, per cent.....	45.0	45.5

Frank Orth has designed a checker in which the size of the pass increases in four steps, being widest at the top and narrowest at the bottom. While G. L. Danforth, Jr., arranges the top of the checkerwork in a series of blocks surrounded by channels about 6 in. wide and about 2 ft. deep. In both cases the purpose is to provide space for the deposit and at the same time prevent it from blocking up the checkerwork. The dust deposit will in time attain a thickness of 1.0 to 2.0 in. at the top of the checker and its effect in increasing the resistance through the regenerator may be gaged by the following record of the gas pressure below and above the checker work published by E. Juon.

Measure of Resistance to Flow Through Checkers

Heat Number	Pressure in mm. of Water.		Heat Number	Pressure in mm. of Water.	
	Below	Above		Below	Above
156-159	+6	+5	600-602	+18	0
160-164	+5	+5	603-606	+18	+1
165-168	+4	+4	607-610	+17	0
169-172	+4	+4	611-613	+16	0
173-176	+5	+0	614-617	+17	0
			618-621	+16	+1

The dust deposit is difficult to cope with, as much of it is extremely fine. It is very difficult to reduce

down in the limited space available, but a considerable the velocity of the gas current and throw this dust

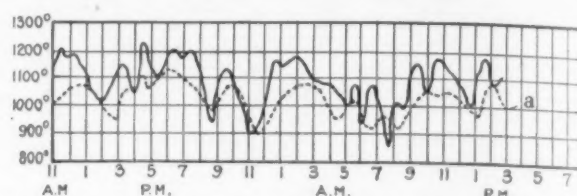


Fig. 19—Temperature Head or Differential Between the Hot Gases in a Fire Box and a Point One Inch From the Surface of the Wall Exposed to Heat

Table X—Temperatures, Pressure, Velocity and Time Data from Various Sources

E. Juon at Donetz-Jurjewka Works		
	Pressures in mm. of water	Temperatures aver., deg. C.
Gas in main.....	+15	600
Gas in flues under regenerators	+2 to +11	650 to 750
Average	+5	700
Gas at top of regenerators.....	+4	1100 to 1300
Gas at top of uptake.....	+7	1200
Air under regenerators.....	+5 to +10	1250
Air at top of regenerators.....	-1	1200 to 1300
Air at top of uptake.....	±0	400 to 700
Air at top of uptake.....	+3	1225
Hearth chamber, top and bottom	±0	1100 to 1350
Waste gases top of uptake—gas	-3	1300
—air	-2 to -3	1250 to 1400
Top of gas regenerator.....	+1.5	1800
Top of air regenerator.....	-14 to -15	1700
Below gas regenerator.....	-14 to -15	1600
Below air regenerator.....	-19	750
At base of stack.....	-18	700
	-33	600

Temperatures according to Le Chatelier and Harbison Walker		
	Told	Time
Gas in flues.....	400	720
Leaving regenerator	850	1200
Aver. temperature in regenerator	625	1200
Air at reversing valve.....	30	
In flues leading to regenerator..	270	
Leaving regenerators	950	1000
Aver. temperature in regenerator	610	
Waste gases entering regenerators..	1600	
After reversing valve.....	300	

	From Told Velocity m. per sec.	Time in sec.
Air and gas passing through the valves...	3.50	...
Entering regenerators	3.00	...
Passing through regenerators, less than	1.00	...
Air in regenerator chamber.....	...	5.00
Checkerwork	3.00
Gas in regenerator chamber.....	...	4.00
Checkerwork	3.00
Air and gas passing through checkerwork, less than	2.00	...
Air and gas passing through chamber over checker	0.50	...
Air and gas issuing from the ports.....	8.00	...
Gases in the hearth.....	...	2.00

amount of this dust will be deposited in a well-designed cinder pocket.

(To be continued)

British Research Work

WASHINGTON, March 16.—While the Congress of the United States has been cutting appropriations for industrial research activities of the Bureau of Standards, the British Government has placed a fund of £1,000,000 at the disposal of its research department to enable it to encourage industries to undertake research. The Advisory Council for Scientific and Industrial Research of Great Britain has recommended, after consultation with manufacturers and others, that the new fund should be expended on a co-operative basis in the form of liberal contributions by the department toward the income raised by voluntary associations of manufacturers established for the purpose of research. Information regarding the work has been forwarded by Consul General Robert P. Skinner, from London.

Mr. Skinner says that under the plan proposed the systematic development of research and the co-operation of science with industry will be carried out under the direct control of the industries themselves. By the co-operation of the firms concerned in any one industry it is believed that work can be undertaken which could not have been dealt with by individual companies.

NEW RAILROAD LAW

Provisions Being Put Into Effect—Decision of Supreme Court Misunderstood

WASHINGTON, March 16.—No time is being lost in putting the provisions of the new railroad law into effect. Conferences have been begun between representatives of the railway executives and of railway labor unions, at the call of Director General of Railroads Walker D. Hines, relative to wage demands. These two committees will continue to hold meetings under the authority of section 301 of the transportation act, which permits carriers and employees to settle wage differences under such procedure as they may agree upon. The hope of Director General Hines is that these conferences may be able to work out a settlement of the many labor problems without referring the matter to the Railroad Labor Board, which, under the transportation act, is the court of appeals to which wage questions are submitted in the event of failure of carriers and employees to reach an agreement.

In the meantime the Interstate Commerce Commission has issued regulations governing the making of nominations for appointment of members of the Railroad Labor Board, which is to be composed of three representatives each of the railroad employees, the carriers, and the public. Lists of not less than six nominees each are to be presented by the carriers and by the unions to President Wilson, who makes his selections and sends the nominations to the Senate for confirmation. The President is not restricted as to the three selections representing the public, but must choose each of the other two groups from the list furnished him. The labor unions have already made their nominations to the President. Under the law the President must make the appointments within 30 days after the passage of the act.

In order that the different classes of railway unions shall be represented the Interstate Commerce Commission has made three groups of employees. The first group includes men who have a part in the operation of trains, such as engineers, firemen, conductors, trainmen and switchmen. The second group is made up of shop men, including machinists, blacksmiths, electrical workers, etc. The third group includes telegraphers, maintenance of way employees, and railway clerks, freight handlers, and express employees. It is the intention that the three nominees representing the unions on the Railroad Labor Board will include one from each of these three classes.

The Association of Railway Executives, which represents 95 per cent of the railroad mileage of the country, will submit nominees for representatives of the carriers on the board.

The Interstate Commerce Commission also has taken steps toward the revision of rates under the provisions of the law requiring rates which will yield an average return of $5\frac{1}{2}$ per cent on the investment by groups of roads. A general hearing will be held on March 22, at which there will be a discussion of procedure to be followed in working out the new rate schedule. Under the new law it is incumbent upon the commission to initiate the rate changes without any formal application for increases. It is expected, however, that the railways will present statements showing the changes that should be made, in their opinion, and the amount of increase that will be necessary to bring the roads up to the $5\frac{1}{2}$ per cent average. It is the general belief that freight rates will be increased from 20 to 25 per cent over the present scale. The commission has a period of six months in which to make the rate adjustment, the Government's guarantee of standard return which prevailed during the war expiring six months from the date when the transportation act became effective. This means that the new rate schedules must be made effective on Sept. 1.

Decision Not Understood

A decision of the Supreme Court having a bearing on valuation of railroads has been misinterpreted to

a considerable extent, according to members of the commission. This was the decision in the case of the Kansas City Southern Railway Co. The court held that the commission erred in not considering and including, in arriving at the valuation of railroad property, "the present cost of condemnation and damages or of purchase in excess of such original cost or present value." The conclusion jumped at by many at the time of the handing down of the decision was that the effect would be to require the commission to disregard the original cost of the property and place its valuation on present values of lands and terminals. It has been declared that the decision would mean the adding of \$1,000,000,000 to the value of the roads, with a corresponding increase in the rates figured on a $5\frac{1}{2}$ per cent basis.

The opinion of members of the Interstate Commerce Commission, however, is that the decision does not mean that the final valuation will be greatly increased. The Supreme Court said in its opinion that the question involved was one solely relating to an alleged refusal to discharge duties which the statute exacts. The commission had refused to hear testimony offered under that part of the valuation section of the act providing that the commission should report "present cost of condemnation and damages or of purchase in excess of such original cost or present value" of carrier lands. The Kansas City Southern Railway Co. alleged that the commissioners' refusal to act in accord with the statute would result in its property being valued at \$5,000,000 less than it otherwise would be valued. The question of how much should be added to the value of the property of the Kansas City Southern Railway Co., however, was not a direct issue in the case. The commission's error was in refusing to hear the testimony offered, according to the Supreme Court. Under the court's decision the commission will hear the testimony on the subject involved, but the weight it will give the testimony is to be determined by the commission. The Kansas City Southern Railway Co. might claim \$5,000,000 additional, but the commission, under the decision, is under no obligation to allow it. The additional testimony to be offered, it is pointed out, may result in increased values, but, on the other hand, there is no definite assurance of that outcome.

O. F. S.

Radiator Company Earnings Increase

In the 11 months ended Dec. 31, 1919, the American Radiator Co. earned an equivalent of \$23.01 per share on the common stock, against \$19.92 per share for the previous 12 months ended Jan. 31, 1919. Net profits after charges and taxes for the 11 months amounted to \$3,036,247. Though at the first of the year demands for its products were slight because of little building, the company's capacity has been taxed to the limit since July 1. In 1915 the company established facilities for making malleable iron and electric furnace castings for the use of itself and outside consumers which have proved profitable. The demand for boilers and radiators was relatively greater in some of the European countries than in the United States. The English constituent company has orders taxing its capacity for six months, the French company for seven months. Because of the lack of fuel the Italian company has been making special castings for the steel industries of Italy, rather than its regular products. The Canadian company is operating at full capacity, building activity having been resumed on an extensive scale. Lack of raw materials has not permitted the German company to work at full capacity. The desperate financial condition of Austria has made the business of the company in that country practically negligible.

Freyn, Brassert & Co., engineers, Chicago, have recently received orders for installation of Brassert-Jones stove linings for additional stoves at the plants of the Struthers Furnace Co., Zenith Furnace Co. and She-nango Furnace Co. They have recently placed eight Universal stove burners for the hot blast stoves of the Wharton Iron Co., Wharton, N. J.

Bending Roll for 37-Ft. Plates

A plate-bending roll with a capacity for bending 37 ft. of 1½-in. plate is now being installed by the United States Government at Mare Island Navy Yard, California. The machine measures 37 ft. between housings, the top roll is 20 in. in diameter and the lower rolls are 18 in. in diameter. The total weight of the machine with motors is 495,000 lb.

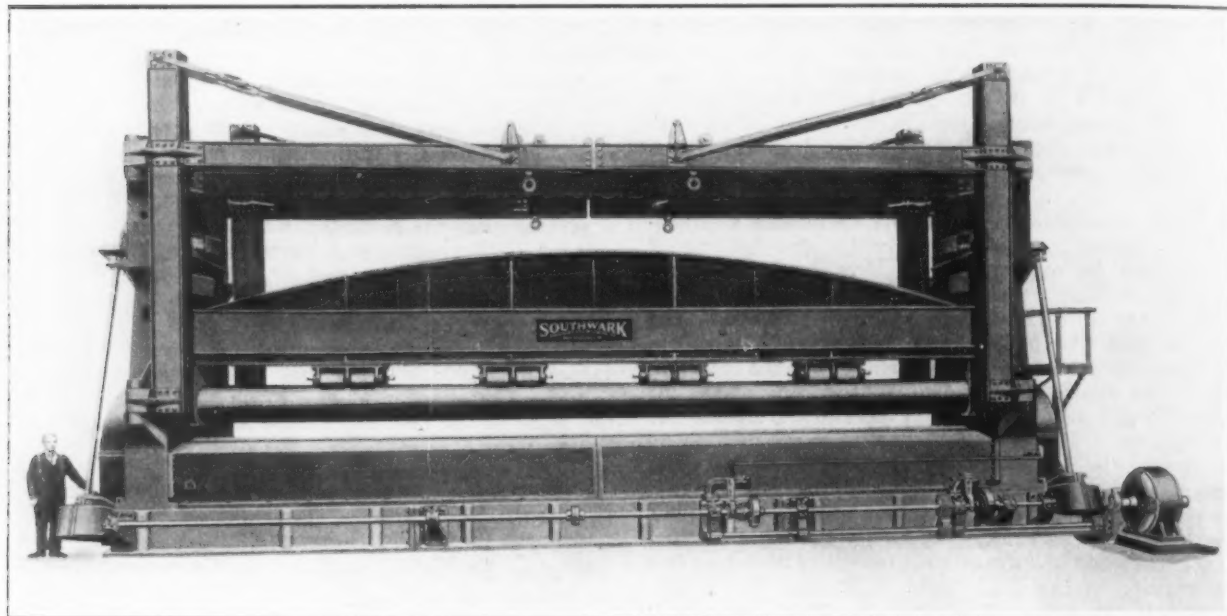
The bending roll is of strong back construction of heavy proportions. The forged steel rolls are mounted in steel housings of box type construction made of cast steel. The roll housings are mounted on a heavy cast-iron sub-base. The top roll is supported at four points

are not affected by this scramble, THE IRON AGE figures for imports having been confined to tonnage statistics, and are therefore unaffected by the fluctuations in exchange. The export figures are based on original dollar values, and are therefore similarly unaffected.

Canada's Steel Supply

WASHINGTON, March 16.—A pessimistic report on the steel supply situation in Canada has been forwarded by Consul Felix S. S. Johnson, Kingston, Canada, under date of March 2.

"It would take a confirmed optimist to find any improvement in the steel supply situation," says Mr.



Southwark Plate Bending Roll with a Capacity for 37 Ft. of 1½-In. Plate Now Being Installed at Mare Island Navy Yard

between bearings by steady bearing rollers which are carried by heavy arch beam constructed of rolled steel sections. The strong back girder is fitted into the crosshead, both crossheads being hung on a swivel, so that the top roll can be thrown out of parallel. The bottom rolls are driven from opposite ends with large diameter gearing on each roll. It is provided throughout with steel gears with cut teeth and all bearings are bronze bushed.

Four jib cranes, two at each side, are provided with trolleys and eyes ready for attaching hoists for handling the work. The platform at one end is so arranged as to enable the operator to see the full length of the rolls on both the entering and discharging sides. All operating levers and controllers are placed at convenient positions on this platform. The screw down is operated by a separate motor of 50 hp., thus to assure greater accuracy and simplicity of mechanism. The rolls are driven by a 150-hp. motor at a speed of 575 r.p.m.

The machine was designed and built by the Southwark Foundry & Machine Co., Philadelphia. This company reports that it is now building an even larger machine, which will bend plate 40 ft. in length.

Confusion as to Statistics of Imports

WASHINGTON, March 16.—The imports statistics which have been gathered during the past year by the Bureau of Foreign and Domestic Commerce prove now to be of little actual value so far as values are concerned. The bureau has issued a statement in which it tries to untangle the various exchange rates that have been applied. According to this statement, the conversion of foreign values into American dollars has been carried out on a continually changing basis, but not with reference to actual fluctuations in the foreign exchange rates.

The monthly reports of the Washington bureau of THE IRON AGE on our foreign commerce in iron and steel

Johnson. "The remarkable thing is that nearly all the business that is sagging the books of the mills remains good, cancellation being rare. Of course, many of the mills refuse to cancel, holding to the principle that a contract is a contract. The shortage of sheets and tubes is becoming a more serious matter than was thought possible a month ago."

Will Dismantle Rolling Mill

The rolling mill of the American Chain Co.'s Columbus, Ohio, plant ceased operations on March 13, and will be dismantled. It is understood that the machinery and equipment will be moved to one of the other plants of the company, possibly to Terre Haute, Ind. This mill was one of the oldest in existence in the West, a portion of it having been built by Peter Hayden in 1848, and being in continuous operation since that time. The plant is located on the Scioto River, the flooding of which caused great loss to life and property in 1913. The city of Columbus has been at work during the past two years deepening and widening the channel so that a repetition of this calamity might be averted. The property of the Chain company used for mill purposes was condemned by the city for this river widening purpose, and the company has been forced to seek a location elsewhere.

Tungsten Ore Developments in Southern China

The recent discovery of small scattered deposits of tungsten ore in the southern part of China is reported by *Eastern Engineering*. Farmers for the most part work them in their spare time. As the concentrates offered are rather impure, native and foreign companies having concentrating plants are springing up. The total exports of these tungsten ores in 1918 was 10,365 net tons, with a larger production which European markets during the war were not able to consume. It is estimated that the mines are capable of equaling production in 1918 for more than 10 years.

Industrial Deaths Exceed Those of War

Many More Americans Died in Factories Than on the Battlefields
During the Great Conflict—Massachusetts Accident Prevention
Congress Discusses Important Subjects at Worcester Meeting

THE first annual Massachusetts Accident Prevention Congress was held at Worcester, Mass., March 9, 10 and 11, under the joint auspices of the Worcester, Springfield and Boston locals of the National Safety Council, and the Associated Industries of Massachusetts. More than 250 attended. The headquarters were at Hotel Bancroft.

Accident prevention is by no means a new subject to the industries of that state, but because this particular congress was the first of its kind in Massachusetts, many important new phases of the safety movement were presented to most of those attending, with the result that much in an instructive way was obtained. Unlike many conventions held from time to time, a very large majority of those registering remained to the last.

Definite progress was made toward the establishment of a hospital and vocational school for the care and education of serious disability cases. Every effort is to be made to interest Massachusetts in such institutions, with Worcester the preferred selective site. There is a strong possibility, however, that in the event of the state failing to appreciate its responsibility in this respect, the hospital and school will be supported by industry and insurance companies.

Important Facts to Remember

The congress opened with a luncheon with Charles E. Hildreth, Whitcomb-Blaisdell Machine Tool Co., Worcester, and president Worcester Chamber of Commerce, chairman, who subsequently introduced C. W. Price, general manager National Safety Council, Chicago, as the first speaker.

Mr. Price some years ago, was connected with the National Harvester Co., Chicago, and therefore is qualified to speak on the subject of accident prevention from an industrial as well as theoretical standpoint. In opening his address Mr. Price asked those present to remember that:

"Of the 2,000,000 boys who went across in the 19 months to fight the Hun, according to the last official accounting made public a few days ago, 47,949 either were killed or died from wounds received in battle;

"That back here in this country during those same 19 months, 126,000 men, women and children were killed, 35,000 in industry, and 91,000 outside industry. And that of the 91,000 killed outside industry, 25,000 were children. In other words, during those 19 months our boys were fighting on the other side of the water, there were 220 people killed in this country every 24 hours, and it would take a ditch 48 miles long and as wide as the ordinary sidewalk to hold the bodies of those 126,000 men, women and children."

Mr. Price said there never was a time when the loss of lives represented more to the employer of labor, to the thinking citizens of our country, to our industries and to society, than it does to-day, and that we as a country must save lives if we are to become a big industrial nation. Mr. Price then gave a brief sketch of the development of the safety movement, which in its present form began some 13 years ago, and cited as the first concrete example of what could be done to save lives, the United States Steel Corporation, which in its first years of effort reduced the number of deaths in its plants from accidents approximately 80 per cent. He said that many things regarding the safety of workmen had been learned during the past 13 years, but that the four outstanding facts were:

First: That it was a demonstrated fact, not a theory, that three-fourths of all deaths and serious injuries in industry can be eliminated if the manufacturer so desires. Investigation showed that of the 22,000 serious accidents reported by industry in 1919, 16,500 could have been eliminated.

Second: That the safety movement has offered the first common ground where employer and employee can meet for mutual benefit.

Third: That taking the experiences of 1000 industries reporting, there was shown a reduction of 50 to 75 per cent in deaths; that of this reduction one-third was accomplished with mechanical devices, and two-thirds by reaching the foremen of departments.

Fourth: That every company reporting had done effective safety work and also proved to itself that by so doing not only were ordinary dividends paid on the investment as a direct result, but extraordinary dividends, as well. Also that the safety movement has been given a dignified standing in our business life, and introduces to the industrial world a new conviction that safety first is looked upon as hard-headed efficient business, which explains the wonderful progress made during the past 13 years in the movement.

Plant Spirit Often Lacking

He lamented the fact, however, that a recent survey of industrial centers disclosed the fact that not one in ten develops in plants a spirit that keeps safety first on every mind in each individual plant. Mr. Price went on record that the problem never would be solved until we incorporate safety in human life, and that the best way to do that was through the children. With the child problem in mind, he gave interesting statistics concerning the increase of numbers of automobiles in use each year since 1910, and the tremendous increase in deaths resulting from automobiles since then. Not only was industry becoming more and more interested in the safety first movement, he said, but publishers of school books, of 650 magazines and of 500 newspapers as well as all of the great railroad systems of the country, and his address ended with a strong plea for co-operation from those present.

Mr. Price was followed, in the afternoon session, by J. F. Tinsley, vice-president and general manager, Crompton & Knowles Loom Works, Worcester, Mass., who read an address on the study his company has made of the question of Americanizing aliens. He said it found it impossible to standardize Americanization; and in his judgment the best method was to appeal to the alien through interests closest to him, namely, his associates, his church, his social organization, etc., ever bearing in mind that it was through the alien's children in our schools that the best results could obtain.

D. S. Beyer, vice-president, Liberty Mutual Insurance Co., with the aid of a chart, then delivered an interesting address on A New Plan of Accident Control. The plan, while new to a majority present, is not so, inasmuch as several important manufacturing concerns are applying it with success, materially reducing the number of deaths and accidents. The plan is nothing more or less than a chart giving the ratio of accidents causing loss in working time per 100 employees per hour in the particular plant. Plants of similar nature using the charts naturally compete for the most perfect record. The charts are corrected and brought up to date every three months, which serves to increase competition. The address, however appealed more to the employer than to the employee, especially the method by which the insurance company arrives at the average rate of accident.

Winthrop Hall, Wickwire-Spencer Steel Corporation, Worcester, who is familiar with the workings of the insurance company's new plan, spoke briefly on its merits, claiming it appealed to the sporting blood of Americans, who have a fondness for breaking records. One plant in particular, which had a bad accident record, with the aid of the chart system, went 84 days

without a loss time accident and six months with but four serious accidents.

Human Eye and the Camera

In the evening, at the North High School Auditorium, the visitors enjoyed two moving pictures, one showing the value of the English language to an Italian seeking his fortune in America; the other the relation of the human eye to the camera, both films touching on safety-first principles, and the product of the Worcester Film Corporation, Worcester and New York. The feature of the evening, however, was a well acted Court of Inquiry on Accidents by the Permanent Safety Committee, American Steel & Wire Co., Worcester. The eight acting members of the committee, including the assistant superintendent, chairman, the original four witnesses, and the unfortunate employee, the doctor, assistant, etc., in fact everyone connected with the investigation of the accident, which actually happened, acted their respective parts and repeated word for word everything they said at the original investigation, to determine the direct and indirect cause for the accident and how a repetition could be avoided. Their effort was highly appreciated and instructive.

F. F. Morris, field secretary, National Safety Council, said that to his mind the shop safety committee was the most effective and the one that really does the lion's share of the work in preventing accidents in the machine shop and elsewhere. He impressed upon those present the importance of remembering that accident prevention is just as important as the question of production.

The second day of the congress was given over to a surgical session, during the morning, and the inspection of the American Steel & Wire Co., South Works; the Worcester Stamped Metal Co., the Norton Co., Reed & Prince Mfg. Co., and the Crompton & Knowles Loom Works plants, in the afternoon.

Dr. Robert E. Andrews, Ludlow Mfg. Associates, Ludlow, Mass., chairman of the surgical session, introduced as the first speaker, Dr. W. I. Clark, service director, Norton Co., Worcester, who talked on Fractures in Industry. He said that fractures caused more long periods of inactivity than any other disability in industry, and that 70 per cent of fractures were due to falls. During his address he gave valuable first-aid suggestions.

Handicapped Men

Dudley M. Holman, manager, United States Mutual Liability Insurance Co., Quincy, Mass., next talked on Rehabilitation of the Handicapped Man. He admitted that every disabled man returned to industry represented a monetary saving to the liability insurance companies, but also represented a monetary saving to industry, inasmuch as while the insurance company pays thousands of dollars for disability, the bill eventually is passed on to society. He severely criticized the National bureau engaged in placing disabled soldiers back in industry, claiming the bureau has fallen down badly. He spoke strongly against the turning over to the bureau the placement in industry of civilian cripples, as now proposed. Mr. Holman said the day of throwing injured men and women on the scrap heap is fast passing. He believes the problem of disability is largely a state problem, but that the insurance companies should bear a big part of the necessary work, and went on record as favoring a state hospital and school where injured men and women can be properly cared for until taught a useful and profitable occupation.

Following the lunch at noon, M. F. Carpenter, Whiting Machine Works, Whitinsville, Mass., editor of the *Spindle*, F. E. Morris, Hood Rubber Co., Watertown, Mass., editor of the *Arrow*, John W. Odlin, Wickwire-Spencer Steel Corporation, Worcester, editor of the plant paper, and S. W. Ashe, General Electric Co., Pittsfield, Mass., editor of *Current News*, gave interesting talks on what the house organs are trying to do to promote the safety first movement.

Meeting for Foremen

The second day of the congress wound up with a meeting in the evening especially interesting to fore-

men, one presiding. E. E. Bohner, industrial service secretary, Associated Industries, the first speaker, in his talk on Americanization as a factor in safety work, brought out the importance of the foreman in the Americanization program. In speaking of educational classes, he reminded Worcester industries that Massachusetts offered an inducement no other State in the Union did, having in 1919 passed a law commonly known as the 50-50 law, which provides for the State paying half the expenses of Americanization education carried on by any industry. Mr. Bohner was asked to demonstrate how, as a teacher, he taught Italian workmen the English language and he did so by teaching the 200 American speaking people present how to speak Italian. He said it was possible to teach the foreign workman 450 English words in six months and that anybody could get along nicely with 450 words of any language.

F. F. Morris, who spoke at the school house the night before, was the other speaker. Mr. Morris's address also was for the purpose of bringing out the importance of the foreman in the Americanization plan, which he did in an admirable manner.

Testimony of Insurance Companies

Representatives of fire and accident insurance companies gave the congress the benefits of their years of study on the question of safeguarding employees, at the closing morning session, which was presided over by L. D. Woedtke, Fred T. Ley Co., Springfield, Mass., and a member of the executing committee, National Safety Council.

Frank H. Wentworth, secretary, National Fire Protection Association, Boston, in his discussion on fire prevention, with special reference to safety to life, put great stress on automatic sprinklers as a requirement of safety, and stated that verticle openings in factories are accountable for 60 per cent of the loss of life through fire, inasmuch as they provided a flue for fire to feed from one floor to another. "Employers," he said, "should be made responsible to furnish a safe place for men and women to work in. Once they are made responsible, it is easy to place responsibility on the workers."

William Ferguson, Travelers' Insurance Co., Hartford, Conn., gave an illustrated talk on safeguards for workers, showing how belts, elevators, grinding machines, etc., should be provided with guards. He said that injuries to young men between the ages of 16 and 25 were usually slight; between 26 and 44 years, were not really serious; but that from 45 years on, they were serious because the men had been so long at the game they were unwilling to pay attention to safety first advice. The average crane accident, he said, was the loss of four fingers, and urged wheel guards and other safety devices.

G. E. Sanford, General Electric Co., Lynn, Mass., gave an interesting but short address on the value of fire drills and pointed out the dangers of lukewarm interest once the practice began.

Then followed a joint luncheon with the Rotary, and Kiwanis clubs and the Chamber of Commerce, Worcester, with C. W. Whiting, American Steel & Wire Co., Worcester, chairman. He introduced R. M. Little, director of the Safety Institute of America, New York, who made a plea for the safety first movement which was one of the strongest delivered during the congress. Mr. Little pointed out the four great principles for which the movement stood—unity, harmony, co-operation and increased production, and said that in the laboring ranks it contributed to self preservation, self respect, self expression and loyalty. A plea for co-operation in the safety first movement brought his several hundred listeners to their feet in their enthusiasm. Early in his discourse, Mr. Little stated there were 2,000,000 lost time accidents in the United States every year; that of this number 750,000 lost four weeks or more time; that 22,500 of the 750,000 died, and that 18,000 suffered permanent function losses. These 2,000,000 lost time accidents cost the country \$200,000,000 annually. In speaking of the growth of the movement, he said there were 4000 industries representing 7000 plants and touching 7,000,000 people, that were vigorously behind the safety first movement and meeting

with remarkable success, not only in its function as regards the loss of life and limb, but in a financial way, as well.

Mr. Noonan's Eloquent Plea

Victor T. Noonan, director of accident prevention, Bethlehem Shipbuilding Corporation, Fore River Works, Quincy, Mass.; president, Boston Safety Council, and chairman of committee, American Society of Foundry Associations, as chairman, then took charge of the congress. He bitterly attacked the industry which looked upon the safety first movement from the almighty dollar standpoint, and made an eloquent plea for its humanitarian qualifications.

W. W. Kennard, chairman, Massachusetts Industrial Accident Board, Boston, said he regretted the fact that his board did not deal with prevention of accidents; that its efforts were along compensation lines. But it is intensely interested in the safety first idea, and he suggested, as did so many before him, the necessity of a school or hospital for disability cases.

The part, an important one, that the Massachusetts Department of Labor and Industries is taking in the safety first movement was told by J. P. Meade, Boston, director divisional of that department. Several thousand rules and regulations have been acted on and enforced by the department, all of which are directed toward life and limb saving.

The illuminating of factories as related to accident prevention, illustrated, was the subject on which A. L. Powell, illuminating engineer, General Electric Co.,

Edison Lamp Works, Harrison, N. J., talked. His discourse was interesting, instructive and appreciated. Mr. Powell asserted that one-fourth of the accidents reported by factories, machine shops, etc., are due to faulty lighting.

Harvey S. Gruver, chairman, S. W. Ashe, Dr. Walter Irving Clark, Dudley M. Holman and Dr. Robert E. Andrews, a committee, drew up the following resolution:

Recognizing the necessity of proving every possible means of re-establishing vocational disabilities, we, your committee, drew up the following resolution:

Resolved, That it is the recommendation of this convention that the Associated Industries, with the co-operation of others interested, make a thorough survey of the extent of the present problem and the existing agencies for its relief, with a view, if necessary, to establishing a rehabilitation hospital and training school.

The resolution was favorably acted upon by the congress.

A banquet ended the congress. F. F. Dresser, Worcester, presided. Channing Cox, lieutenant-governor of Massachusetts, highly commended the congress for the task it has undertaken. E. LeRoy Sweetser, commissioner, Massachusetts Department of Labor and Industries, Boston, spoke along similar lines and urged co-operation between industry and State in the safety first movement. The last speaker of the congress was H. L. Smith, general manager, Bethlehem Shipbuilding Corporation, Bethlehem, who handled in a masterly manner the safety first idea and what it stood for, making an eloquent plea for co-operation for the great task set before American industries.

Expansion of Our Steel Trade With Japan in 1919

The extent to which the trade in iron and steel between Japan and the United States expanded as a result of the war was discussed in THE IRON AGE, July 3, 1919. A table of the leading exports from this country to Japan was published, compiled from Government official data, covering these exports in 1913, 1916 and 1918. The remarkable expansion in Japan's purchases in 1916 and still more in 1918 over those of 1913 was called attention to.

A compilation of the same data for 1919 reveals a still more interesting situation. In the following

but in 1919 Japan is credited with 23,687,710 lb. of lead and 36,301,738 lb. of zinc, both unprecedented movements.

The outgo of metal-working machinery to Japan has also expanded. Last year these were valued at \$5,383,184, or the largest for any year on record.

It is planned to merge the Westinghouse, Church, Kerr & Co., Inc., and Dwight P. Robinson & Co., Inc., general engineering and construction, under the firm name of Dwight P. Robinson & Co., Inc. The owners of Westinghouse, Church, Kerr 6 per cent cumulative preferred stock will have the option of receiving either \$85 in cash per share, or one share of new 7 per cent

Exports of Leading Iron and Steel Products from the United States to Japan

	1913	1916	1917	1918	1919
Wire nails, lb.....		56,007,096	26,386,606	39,362,292	36,324,064
Cast pipes and fittings, lb.....	9,824,333*	11,589,750	10,924,122	24,075,465	2,715,786
Wrought pipes and fittings, lb.....	13,732,846*	23,752,116	43,169,006	47,173,025	57,926,988
Steel rails, gross tons.....	20,820	2,979	75,113	81,243	152,997
Galvanized iron and steel sheets, lb.....		4,628,607	9,882,089	5,337,953	13,313,507
Steel plates, lb.....	16,241,961	174,100,197	577,335,991	269,686,510	545,851,094
Steel sheets, lb.....		12,934,539	81,460,078	120,642,862	85,385,782
Structural iron and steel, gross tons.....	8,981	24,405	35,514	24,197	49,920
Tin plates, lb.....	509,245	54,230,362	48,986,444	82,080,957	101,837,517
Barbed wire, lb.....		18,540,663	418,601	458,627	845,068
All other wire, lb.....		47,773,438	51,724,222	67,450,924	59,582,379
Metal working machinery.....		\$801,449	\$1,332,320	\$4,047,172	\$5,383,184

*1915.

table the data published in July, 1919, are further elaborated by the addition of statistics for 1917 and 1919 in order to show the relative pre-war, war and post-war buying of American iron and steel by the Japanese.

These data show that the very heavy flow of American iron and steel to Japan during the war did not cease in 1919. That country's purchases last year not only surpassed as a total the striking war demand but in several products Japan's demands have excelled any of those during the war. This is particularly true of rails, galvanized sheets, tin plates and structural steel. Demand also last year for wire of all kinds and of wrought pipe and fittings was extremely heavy.

Another prominent feature of Japan's American purchases has been those of lead, zinc and copper. Before the war, or in 1913, these were insignificant,

cumulative preferred, and the owners of common stock will have the option of receiving either \$55 in cash per share, or one share of new 6 per cent participating second preferred stock. The holders of Robinson & Co., Inc., 8 per cent cumulative preferred stock will receive the par value of their stock in cash, and the holders of the common shares will receive share for share of common stock in the new company.

The Charles C. Kawin Co., foundry engineer and chemist, 431 South Dearborn Street, Chicago, has made arrangements with the Courtney-Fraser Co., New York, whereby the laboratories of the latter at Akron, Ohio, will be operated as a branch of the Kawin company. The Courtney company has also arranged to have the business of its laboratory at Buffalo cared for by the Kawin laboratory in that city.

COAL MINERS' THREATS

Failure of Commission to Agree May Cause Serious Trouble

WASHINGTON, March 16.—Inability of the President's Coal Commission to reach a unanimous agreement is threatening further difficulties between bituminous coal miners and operators. There are threats of another general strike, with all its resultant injuries upon the industries of the country.

Without a unanimous decision to insure its acceptance by both parties, the formulation of recommendations by the commission appears to represent only so much wasted time. President Wilson is trying to find some solution of the question. As the situation now stands, the report signed by Henry M. Robinson, chairman, representing the public, and Rembrandt Peale, representing the operators, recommends an additional wage advance of 25 per cent, including the 14 per cent granted the miners at the time of the coal strike, and also recommends that hours and conditions of labor remain unchanged. In view of the refusal of John P. White, representing the miners, to concur in the report, it is obvious that the coal miners will not accept the recommendations of the commission.

The information relative to the majority report which thus far has been made public, would appear to indicate that the commission has not attempted to fix prices of coal. It has been apparent that any price fixing action of the commission would be of little avail in view of the fact that the Government cannot continue price control after the formal proclamation of peace. So far as wages are concerned, any recom-

mendations to the commission will have no effect without a voluntary agreement by both operators and miners.

The outcome of the commission's investigation provides another illustration of the difficulty of working out existing arbitration schemes. The miners, in advance of the investigation, agreed to accept its findings, but apparently are unwilling to abide by the recommendations of a majority of the commission, and threaten to overturn the whole findings because they do not meet the views of the minority member. It is because of fear of just such a situation that the Railroad Labor Board, as constituted under the new transportation act, includes three representatives of the public, and a provision is added that decisions shall be by a majority vote, including at least one of the public representatives. It is the theory that public sentiment would support a finding of a majority of board of nine members, particularly if the three public representatives were in accord with a majority opinion.

Mr. White, in dissenting from a majority report of the commission, is understood to have held out for a wage increase of approximately 35 per cent, and a 7-hr. day.

Some settlement of the controversy so far as Government participation is concerned is expected to come within a few days. Coal operators and others who have been restive over continued maintenance of war-time price control, are hoping for an early solution by which price restrictions will be removed. The contract under which the operators and miners are now working expires April 1. If the President is unable to bring about a unanimous agreement by his commission it will be necessary for the operators and miners to start at the beginning again in an effort to agree on a new contract.

Wages of Sheet Mill Men Advanced

For the March-April period sheet mill operatives will receive an advance of 9 per cent over the rate prevailing in January-February, while tin mill hands will be advanced 10 per cent, following bi-monthly examination of sales sheets for shipments in the first two months of the year by representatives of the Amalgamated Association of Iron, Steel and Tin Workers and the Western Sheet and Tinplate Manufacturers' Association, at Youngstown, Ohio. The average invoiced selling price of Nos. 26, 27 and 28 gage black sheets shipped by the mills in January and February was found to be \$4.65 per 100 lb., compared with \$4.35 as revealed at the January settlement. This six-point increase raises sheet mill workers 9 per cent, as the agreement between the mills and the Amalgamated stipulates that the tonnage rate shall increase 1½ per cent for each member of the crew for each five cents per 100 lb. advance above the base of \$2.15 per 100 lb. Likewise, as the price decreases, the rate paid operatives drops. Under the new scale, sheet mill workers will receive 75 per cent above the base card rate.

The examination disclosed an average invoiced selling price for tin plate shipments during the past 60 days of \$7.40 per base box, as compared with \$6.90 in January. This advance of 50c. or 10 points entitles tin mill employees to a 10 per cent raise. The contract covering the tin mill scale provides for a one per cent increase for each member of the crew on each five cents advance in the price per base box, figured on a base of \$3.50. Tin mill workers are therefore receiving, for March and April, 78 per cent above the base.

Speakers at Safety Congress

HARRISBURG, PA., March 15—Men prominent in the steel industry, including Charles M. Schwab, chairman of the Bethlehem Steel Co., Bethlehem, Pa., are among the speakers who will come to Harrisburg to address the Pennsylvania Safety Congress, to be held under the auspices of the Pennsylvania Department of Labor and Industry, starting on Sunday and continuing until March 25. Among the other leading steel men who will address various sessions are George T. Fonda, Bethlehem Steel Co.; Whiting Williams, Hydraulic Pressed Steel Co., Cleveland; John A. Cartel, Carnegie

Steel Co., Pittsburgh, and E. C. Ramage, Carnegie Steel Co., Braddock.

In addition to these men there will be forty other speakers. Among these will be Samuel Gompers, president of the American Federation of Labor; Theodore Roosevelt, Jr.; Dr. Royal Meeker, United States Commission of Labor Statistics; C. W. Price, National Safety Council; W. W. Atterbury, vice-president Pennsylvania Railroad, and W. H. Cameron, Eastman Kodak Co., Rochester, N. Y.

Stock for Employees

As a result of the Supreme Court decision exempting stock dividends from taxation, it is expected large independents in the Youngstown, Ohio, district will effect financial readjustments, whereby their employees may be enabled to buy common stock on an advantageous basis. The high price of common stock of the Youngstown Sheet & Tube Co., Brier Hill Steel Co. and Trumbull Steel Co. has heretofore prevented many workers from subscribing. Expected stock dividends, however, will pave the way for a wider distribution of stock among employees, and aid industrial stability.

In the Mahoning Valley this is considered one of the most desirable features of the decision, in that it will permit stock distributions, which will mean a big scaling downward in the market quotations of common securities. Each year since the United States Steel Corporation inaugurated its policy of buying stock and selling it to employees on a deferred payment basis, there have been large subscriptions in the aggregate by employees of the Carnegie Steel Co. in the Youngstown plants. While employees of independents have been, to some extent, buyers of preferred holdings, common stocks have not been so liberally distributed as the executive managers would have wished. It is felt here partial ownership of the industries, which is now enabled, will prove a big factor in promoting a better feeling on the part of employees toward the manufacturers and in lessening discord.

Financial interests estimate the amount of stock dividends in contemplation will exceed \$100,000,000 in the Mahoning Valley alone. Common stock of the Youngstown Sheet & Tube Co. has advanced to \$400. Previous to the decision it was selling at \$340.

Inventories in Stores Keeping

The Perpetual Inventory — Checking With Actual Stores — Methods of Pricing Deliveries from Stocks

BY H. B. TWYFORD*

THE ledger accounts with customers should not be more accurate than the ledger or perpetual inventory, which records quantities received into stores, delivered out of stores, and balances on hand. This should be kept posted so closely that complete detailed information can be obtained from it monthly, weekly, daily and hourly. This data should tell what quantities are on order, what have been received in any given period, and what has been delivered or the rate of consumption and whether that consumption is uniform all the year around or subject to variations.

The records can be extended so that a balance of credits against the stock can be proven with the daily sales, thereby proving the work as well as indicating the exact amount of stock on hand each day, and at the end of a month the actual value of each commodity even

of the stores. It is equally essential to verify the entries in the stores ledger as it is to verify documents from which debits and credits are entered in the ledger with customers.

It is an excellent plan for a storekeeper to consider himself in the position of a banker. He should have corresponding deposit slips and checks as in banking, and should jealously guard them as the basis of his clerical work.

Checking Actual Stores

The physical check, for it can scarcely be called an inventory, should be carried out at convenient times. Possibly some active items should be checked at more frequent intervals than others.

If this checking cannot be carried out by the reg-

ARTICLE		VERIFICATION DATES				SHEET NO.	
Cap Screws 1/2" x 4"							
ALWAYS SPECIFY AS FOLLOWS: QUANTITY, DIAM, LENGTH, STYLE HEAD, CAP SCREWS, THREADED U. S. S.							
EXAMPLE: 800 1-2" 4" HEX. " " " "							
LOCATION	SECTION NO.	SHELF NO.	SIN NO.	UNIT	MAX.	MIN.	AVERAGE MONTHLY
ORDERED AND RECEIVED				ISSUED		ISSUED	
DATE	ORDER NO.	QUANTITY		DATE	REQ. NO.	QUANTITY	BALANCE
		ORDERED	RECEIVED				

Form of the Perpetual Inventory Sheet, the Sizes of Which May Be Varied as Required

in case of fluctuations in prices. These features, however, go beyond strictly storeroom work.

Machine Bookkeeping

As the use of the bookkeeping machine is being applied to stock records, its possibilities should not be overlooked. It eliminates the necessity of some higher priced labor which hand methods make indispensable. The work is turned out at far greater speed, it is more legible, and part of the higher grade labor can be allocated to other work.

In its application to perpetual inventories it must be extremely flexible, simple in operation, and must furnish the results without attention from the operator beyond printing items in their proper columns.

Two cross computations must be made simultaneously, one of quantities and one of values. To the quantity in stock, with its value, must be added the quantity and value of merchandise placed in stock, the new total of quantity and value shown in the register being then printed in the balance columns. Likewise, withdrawals of quantity and value from stock must be deducted and the balances shown. Simultaneously with these operations a control total of the value of the merchandise put into stock or taken out must be furnished daily; and where required, the machine should also furnish totals of quantity placed in or withdrawn from stock. This method of handling the stock ledger gives a perpetual inventory of all classes of goods, as well as an immediately available total of their value, both as units and as a whole.

Perpetual Inventory

The perpetual inventory is compiled from the documents or vouchers which show the entries into and out

of the stores. If it is desired to have independent help do it to prevent collusion, there could be called in receiving department, shipping room or office workers, or inspectors in the production department might take some part in it. These men are for the time being storeroom auditors and should be furnished with auditing cards, as shown in the illustration.

It is possible that there are storerooms which contain comparatively few items, and these may be of a bulky nature, where the physical check may be a matter of no great consequence. It is not good practice, however, to dispense with it entirely.

It must be obvious to the practical storekeeper and close observer of storage problems that both the clerical and physical inventories are necessary. The former are absolutely imperative, while the latter is more a check on the clerical records.

If there are discrepancies they can be rectified by recourse to the documents from which the records were written up. In a manufacturing establishment these usually pass into the cost department and in a supply house they would finally go to the accountant. In either case they should be preserved long enough to enable the storekeeper to clear up discrepancies.

There is no insuperable objection to a periodical inventory being taken if operating has to be suspended anyhow for some other reason. With many manufacturers custom has decreed the annual closing down for inventory and they do not seem to be able to break away from it. To produce at a profit is what a manufacturing establishment exists for. To suspend this function cannot be considered good policy.

Pricing Material Delivered Out of Stores

In manufacturing establishments there are two methods of pricing material delivered from stores to the shop, for the reason that the price of articles re-

*Purchasing agent, Nichols Copper Co., Laurel Hill, Long Island, N. Y.

ceived into stores varies. For example, 1000 lb. of copper is received costing 40c. per lb.; 400 lb. of this is delivered to the shop, leaving a balance of 600 lb. At this point 500 lb. more are received, at 43c. per lb. The total quantity in the stores then would be 1100 lb. and the average price would be 41.36c. per lb.

It is a practice with some establishments to average the price immediately there is a change, because it is claimed that it is better to have one price apply on all material of the same kind. This is really making the stock of material in the stores subject to all market fluctuations. For cost-keeping purposes in the factory, such fluctuations cannot be considered. Those who adopt this method argue that it is less liable to lead to mistakes, simplifies pricing of material and renders calculations much easier.

On the other hand, suppose the sales department made a contract to sell certain articles, the product of the factory, and among materials used in their manu-

PERPETUAL INVENTORY VERIFICATION

MATERIAL

I have this day actually—counted—weighed—measured—the stock on hand and am positive as to the accuracy of the amount given below.

DATE QUANTITY UNIT

Signature of person checking stock.....

I have compared my records with the actual stock on hand and certify to the correctness of the amounts entered below.

RECORD BALANCE.....MAX.MIN.

Inventory clerk's signature.....

NOTE: Comparison with the perpetual inventory must be made immediately after the material in stock is checked and before further entries are made of incoming material or withdrawals.

Card for verifying the perpetual inventory with the quantity of material in the stores. Size: 6 x 4 in.

facture 1000 lb. of copper was needed. The shop might withdraw 600 lb. to commence the work, but on subsequent withdrawals the price would be raised. This is not fair nor reasonable, because the original contract for the sale of the articles was made on the basis of 40c. per lb. for copper and it was delivered into the stores at that price. While it entails a little more clerical work it is good practice to charge out the 1000 lb. at the price paid even if it was delivered in quantities of 10 or 20 lb. at a time.

The theory in all stores-keeping is that the material which has been in the stores the greatest length of time should be delivered first, and this being the case, then it should be charged out at its own price, and not at the price of some later delivery.

In many manufacturing operations it is not desirable to have the stores show a profit or a loss, which it would do if the average pricing feature was in vogue. The only way to obviate this is to adopt the plan of charging the outgoing material at its incoming price. Of course, the regular percentage must be added to cover stores costs, and this percentage can be figured so closely that over a period of one year the balance one way or other is negligible.

William Jacks & Co., metal merchants of London and Birmingham, England, have issued a circular referring to the fact that a Glasgow firm of the same name which has been trading in London since 1916 with the distinguishing words "of Glasgow" at the end of its name, has now dropped these two words and converted its business into a limited liability company called William Jacks & Co., Ltd. The circular says that William Jacks & Co., who have offices in six centers of the Far East, and are also proprietors of the business of William Colvin & Co., Glasgow and Middlesbrough, have not converted their business into a limited liability company. The partners in William Jacks & Co., since the death of William Jacks in 1907, and the retirement of A. Bonar Law from active business in 1902, are J. G. Buchanan, Stewart Barry and R. R. Walker. Its London address is 5 East India Avenue.

Settling of War Contracts Will Be Completed June 30

WASHINGTON, March 16.—The War Department Claims Bureau, which has been engaged in settling war contracts ever since the signing of the armistice, expects to complete its work by June 30. Secretary of War Baker has given instructions that the organization shall be disbanded by that date.

The immense numbers of claims arising from munition and supply contracts have been adjusted by a specially organized personnel, including business men, lawyers, engineers, accountants, and experts of various sorts. This organization has had the task of settling nearly 30,000 claims. Out of the whole number of claims about 24,000 have been adjusted in a manner acceptable to the contractors as well as to the Government. A considerable number of claims has been withdrawn by the contractors. There remain to be settled about 3300, which it is expected will be disposed of before June 30.

Working under the War Department Claims Bureau have been 42 local boards and agencies scattered throughout the country in the various districts. The total number of people who have assisted the War Department have been 11,000, not more than 82 of whom were officers of the regular army.

The sum of two and a half million dollars would have been necessary to have completed the 24,000 contracts which have been settled. The amount to be paid out by the Government on the adjustment of these contracts has totaled about \$304,000,000, or about 12 per cent of the total cost if completed.

Meeting of Electric Furnace Association in Boston

Coincident with the meetings of the American Institute of Electrical Engineers and the American Electrochemical Society, there will be a meeting of the Electric Furnace Association in Boston, from April 8 to 10. The annual election and business meeting will be held on April 8. On one other day there will be a session on the proper training of operators of electric furnaces. The association will meet with the other two societies mentioned above, during their discussions on "Electrically Produced Alloys," and "Power for Electrochemical Purposes."

The combined program will be of particular interest to electric furnace operators, inasmuch as subjects of vital importance to the industry will be discussed. Indications are that there will be a considerable attendance of electric furnace men at these sessions and that very excellent papers will be presented.

During the meeting the headquarters of the Electric Furnace Association will be at the Copley-Plaza Hotel.

Pittsburgh Foundrymen's Association

The monthly meeting of the Pittsburgh Foundrymen's Association was held in that city Monday evening, March 15. C. B. Connelly, Commissioner of Labor of State of Pennsylvania, gave a talk on "The Relationship of the Department of Labor and Industry to the Foundry Industry." The new members since October, 1919, include the following:

W. E. Moore, Thos. A. Reynolds, Independent Pneumatic Tool Co., Shepard Electric Crane Hoist Co., C. J. Christensen, Walter A. Buechner, Factory Products Co., Inc., E. C. Schultz, Wm. Hartill, Locomotive Stoker Co., Frank G. Faller, Jr., Mackintosh-Hemphill Co., all of Pittsburgh; also the Berry Metal Co., New Brighton, Pa.; Venango Sand Co., Franklin Pa.; Chas. Neeson, Zellenople, Pa.; Acme Steel Co., Glassmere, Pa., and George H. Hess, Tarentum, Pa.

Circular saws of the spiral inserted tooth type, 108 in. in diameter, with 190 teeth in the rim, were recently finished by Henry Disston & Sons, Inc., Philadelphia, for cutting shingle blocks from the large trees of the West. At full speed the teeth travel at a rate of about 130 miles per hr. Each saw started out as an ingot weighing 1140 lb., and after reheating, rolling and trimming, the remaining weight was about 795 lb.

Midvale Plan of Representation Tested

Company Disappointed Because It Was Only Partial Success in Strike Times, But Not Discouraged—Year Fairly Satisfactory in Finances

THE annual report of the Midvale Steel & Ordnance Co., 1919, shows net earnings of \$16,787,254, compared with \$50,529,012 in 1918. The net income for 1918 was \$29,208,536 and for 1919 it was \$10,588,605. The surplus is \$55,308,703. Interesting observations are made in regard to the strike and plan of employees' representation, as follows:

"Our plan for representation of employees, which was inaugurated Oct. 1, 1918, received a severe test during the year 1919.

"Under the auspices of a number of labor organizations a general strike in the steel industry was called on Sept. 22, with varying results as far as our different plants were concerned. At our Nicetown plant there was no response whatever on the part of our men to this attempt to disrupt the pleasant relations existing between the company and its employees. At Coatesville our operations were seriously curtailed for only about one week. At Johnstown a sufficient number of men failed to report for work on Sept. 22, to seriously curtail our operations.

"We were then confronted with the alternative of protecting, housing and feeding men within the plant, and thus combating the terrorism which had prevented many of our employees from coming to work, although otherwise disposed to do so; or allowing the plant to remain closed until the sober second thought of the men and the community had time to assert itself. We adopted the latter plan, both because we felt it was the least costly, and because we believed it would be for the ultimate benefit of the men, the company and the community. About 1500 men were retained in the service to maintain the plant in a condition to permit resumption of operations without difficulty.

"During a shut-down of about seven weeks a large majority of the employees expressed themselves as being anxious to resume work under the conditions existing at the time of the shut-down, and we were, therefore, able to resume operations on Nov. 17.

"While we, of course, were disappointed at the failure of our efforts to establish such relations as would prevent any such interruption to our operations, we are not discouraged by this experience. The January elections, as provided in the plan of representation, were held as usual, and the plan is now functioning in a satisfactory manner."

A Year of Problems

In regard to business conditions, homes for employees and problems of the year the report says:

"The year 1919, while fairly satisfactory as to final results, presented many difficult and perplexing problems. Very early in the year a general hesitation in business became apparent, due to readjustment from war conditions. This resulted in a material decrease in orders, so that we were only able to operate at about 60 per cent of our normal capacity for the first eight months. Labor troubles in the fall further reduced our operations, so that for the entire year our total production was only about 50 per cent of our normal capacity.

"During the year we added to our ore reserves by purchasing a substantial interest in the Mesabi Iron Co., a corporation which has been formed for the purpose of mining and beneficiating the extensive deposits containing magnetic iron owned by it on the eastern end of the Mesabi range in Minnesota.

"The importance of proper home surroundings for employees has been recognized by this company since its organization, and efforts have been made to improve living conditions in the various communities in which the works are located, by acquiring property and erecting buildings which, while furnishing modern conveniences, were within the means of the workmen. We

believe that the interests of the company are identical with those of the communities in which the various plants are located, and that the ideal American community is one in which all, or at least a majority of the citizens, own their own homes.

"The subject of homes for employees was considered at the meeting of the elected representatives of employees and officials of the company, held in Philadelphia, May 10, 1919. The hope was then expressed by the employees' representatives that the company would extend its activities in the matter.

"War conditions have accentuated the necessity for additional homes, and in order to meet the needs of our workmen in this respect, and to establish a system which will be uniform for all of the different communities affected, the board of directors, at the meeting held June 4, 1919, adopted a resolution which, among other things, provided a fund of \$2,500,000 to institute an extensive and reasonable home building plan. This plan, in substance, provides for loaning to our workmen, under proper safeguards, an amount not in excess of 90 per cent of the value of the home to be purchased or built. These loans are liquidated by regular monthly payments to be made over a term not in excess of 12 years. Of the above amount, \$1,026,032.52 have been expended in loans to 336 employees.

"The board of directors, at a meeting held May 7, 1919, authorized the establishment of a pension plan for employees. This provides for a uniform pension of \$30 per month, regardless of position, wages or salary prior to retirement. Retirement on pension will be compulsory upon reaching the age of 70 years, provided the employee has previously completed 25 years of service. Employees may be retired either at their own request, or by the company, after reaching the age of 65 years, and having completed 25 years of service.

"Since the first of January, 1920, our mills have been operating at the rate of about 75 per cent of capacity, and we have grave doubts whether the operations can be materially increased, due to labor conditions and the absolute necessity of making repairs and renewals, especially at Johnstown, to insure economical operations.

"Operating costs are abnormally high because of the above conditions and impaired transportation; the latter being largely due to the unusually severe winter. Prices generally for our commodities are satisfactory. We are hopeful that 1920 will be an improvement over 1919."

Consolidated Statement of Income for the Year Ended Dec. 31, 1919

Net earnings from operations (after deducting all expenses incident to operations including those for ordinary repairs and maintenance amounting to approximately \$14,000,000 and for federal taxes).....	\$16,787,254.85
Other income:	
Income on securities, commercial interest, and discount, etc.....	2,277,630.37
	\$19,064,885.22
Deduct:	
Provision for depreciation, obsolescence and mine exhaustion	\$5,334,770.25
Bond interest:	
Midvale Steel & Ordnance Co. \$2,195,928.15	
Subsidiary companies	606,861.33
	2,802,789.48
Guaranteed dividend on Cambria Iron Co. stock.....	338,720.00
	8,476,279.73
Net income for the year 1919 after providing for profits applicable to minority interests	\$10,588,605.49
Surplus—Unappropriated, per certified accounts, Dec. 31, 1918	\$53,720,097.92
Deduct:	
Dividends declared and paid during the year.....	9,000,000.00
	44,720,097.92
Surplus—unappropriated, balance Dec. 31, 1919, carried to balance sheet.....	\$55,308,703.41

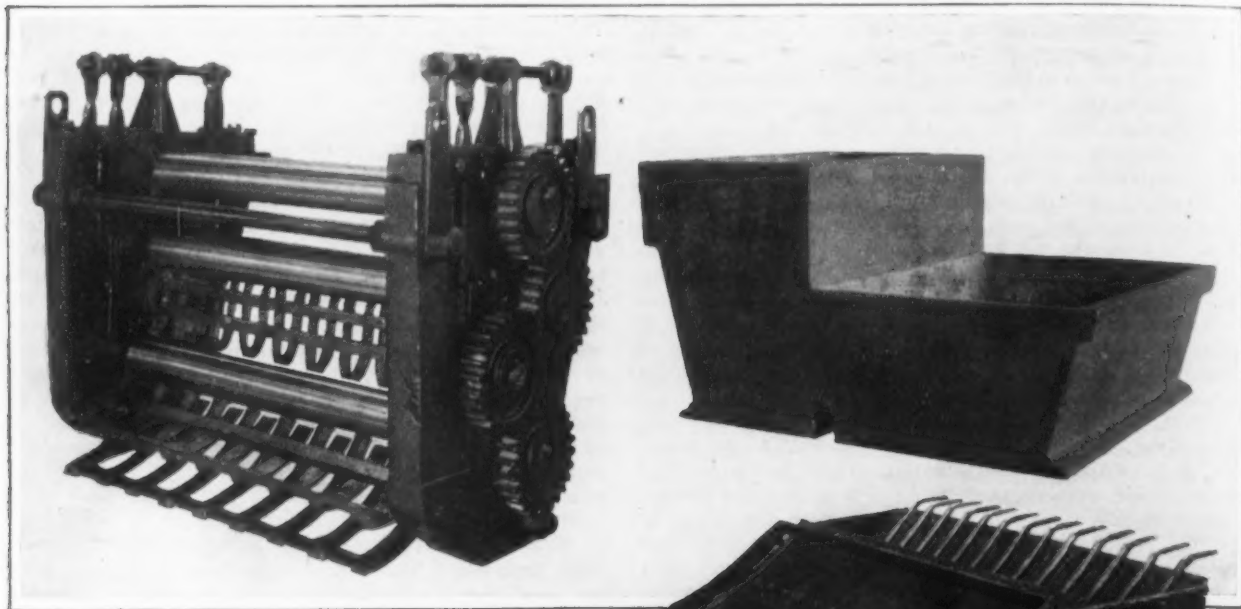
Machines for Tinning Heavy Sheets

A machine designed for the tinning of heavy sheets used in the manufacture of milk can bodies that usually run over 40 in. in length has been recently added to its line of tinning machines by the Aetna Foundry & Machine Co., Warren, Ohio. The accompanying illustrations show the construction of the machine and the general arrangement of the rolls. There are six pair of rolls. The lower pair act as feed rolls; the second pair, which run in the bath of tin, act as spreaders, and the upper pair of rolls, which run in the oil bath, are set to take off excess tin, leaving the sheets with the

several months from date. Current orders far surpass present production. Many of these are from foreign countries which are outbidding Belgian steel users. The demand for special steels for automobiles and machines, as well as for electrical equipment, is very great."

Hair Line Cracks in Nickel Steel

The cause of the development of hair-line cracks in nickel steel continues to baffle the metallurgists. Investigations by the British Air Board in connection with crankshafts for aero engines have demonstrated that



The Machine Shown Directly Above and the Flux Box, the Lower Right-Hand Illustration, Are for Tinning Heavy Sheets. The other illustration shows the pot in which machine and flux box are placed

desired coating and finish. The flux box is unusually long and of heavy construction, giving an easy sweep to the plates. One of the illustrations shows the tin pot in which the machine and flux box are placed when running. No catcher is used with this machine, principally on account of the length and heavy gages of the sheets that are tinned. The operator stands at the discharge side of the machine and places the sheets upon a special slow-moving conveyor on which they are cooled. At the end of this conveyor they fall on a fast-moving conveyor placed at right angles to the first, which carries them directly to the cleaning and polishing machine, from which they emerge ready for use.

Steel Shortage in Belgium

WASHINGTON, March 16.—The last months of the year 1919 found a number of Belgian industries fast approaching pre-war production, and the promises for the future brighter than most people dared to hope for a year ago, according to a report just forwarded by Vice Consul Charles W. Drew, Jr., at Brussels.

Lack of coal continues to be the greatest obstacle in the production of Belgian industry as a whole. There is criticism for allowing the exportation of the large quantities of coal now going out of the country.

"Metallurgical industries are suffering from a shortage of coke, coal and ores, as well as from the crisis in transportation," says Mr. Drew. "Blast furnaces that have been in operation have been forced to close. Ore shipments are still refused by the railroads, as they have been for some time past, and the shortage of ore is reflecting itself in many other industries.

"Steel is not being produced in nearly sufficient quantities to meet the demands. There is no stock available, and deliveries are not offered except at

serious failures can be traced to hair-line cracks in the steel, but whether these develop from faults in the original ingot or in the subsequent heat treatment or machining operations, nobody yet can say, although certain theories on the subject exist, says the *London Ironmonger*. It was noticeable that in the series of papers on nickel-chrome steels read before the Iron and Steel Institute in October all the authors refrained from any mention of the existence of hair-line cracks, and yet it was stated in one paper that the whole product of nickel-chrome steel supplied by Armstrong, Whitworth & Co. was passed by government inspectors. It cannot be the fact that government inspectors, or at any rate air board inspectors, regard hair-line cracks as of no importance, for we know that Lieut. Col. Jenkin of the air board is considerably perturbed regarding their occurrence. Have Armstrong, Whitworth & Co. therefore succeeded in eliminating hair-line cracks? All makers have trouble in this direction, and it would be interesting to know whether the method of manufacturing nickel-chrome steel laid down in the paper by Andrew, Greenwood, and Green of the metallurgical research department of Sir W. G. Armstrong, Whitworth & Co. eliminates hair-line cracks. If they have discovered the secret it is but natural that they would wish to keep it to themselves, but it is a problem upon which general research might well be carried out.

Baldwin, Ltd., Toronto, have taken out a permit for a plate mill building on Ashbridges Bay, Toronto, to cost \$200,000.

Sharp Cuts in Cuyuna Manganiferous Ores

Scaling of Prices on Some Other Grades by Sales Agencies Having Blast Furnace Connections—Very Fast Loading at Duluth—Adopting Electric-Driven Shovels

SOME of the sales agencies which are interested in blast furnaces have been scaling iron ore prices a little in making sales. Some of the producers of high grades of ore, on the other hand, have been withholding their ore from the market, in the belief that they may be able to get more later. From the attitude of several of the ore handling agencies, however, it would not seem probable that any better price than the present schedule is likely for round lots of ore of any character. The market probably is pretty well filled up for the present on all grades.

There have been sales of Cuyuna manganiferous ores to considerable amounts, but a fly has come into the ointment through very sharp cuts in price, made by a large and strong independent who has just opened a steam shovel property on that range, from which he will be able to produce up to say 200,000 tons of ore in 1920 running not far from 7 per cent manganese. The cut is so deep that it more than wipes out any excess price over iron for the units of manganese. Those attempting to produce this grade from underground are simply out of it, and those having open pit mines of a similar quality are hurt to the extent of the cut. There is a good deal of feeling on the part of other producers, especially as from any information in the hands of most of them it would seem unnecessary at this time.

Demand for the Lower Grade Ores

A demand for lower grade ores containing manganese has developed to a very material extent, as the result of the enforced use of such ores during the war period; and Cuyuna range manganiferous producers are most encouraged for the future. Many iron makers are glad to get a manganiferous ore for furnace use, for basic and foundry practice. Cuyuna manganiferous ores are almost uniformly non-Bessemer and some are fairly low silica, and these are well suited for the purpose. It is unfortunate that in far too many of these ores the silica is high, averaging up with the manganese in percentages; and such ores will have more difficulty in getting into the markets.

Study of Cuyuna Ores

A study of analyses sheets shows that these Cuyuna manganiferous ores can be divided roughly into two classes, with an intermediate, perhaps. These may be characterized as follows:

	Phos.	Silica	Manganese
Low phos., high silica.....	0.065	15.00	11.3
High phos., low silica.....	0.250	7.00	10.3
Phos. between 0.09 and 0.15.	0.130	13.50	15.0

The first ores are chiefly from underground properties, the second mainly from open pit, though this distinction is not universal. These ores usually negotiated are in the first place upon the old range non-Bessemer base, for the iron, and twice this base for the manganese contained. But it cannot be said that this standard ever has been adhered to very closely. Too many variables,—chemical, physical, technical and commercial—interfere. Excessive silica, high phosphorus, undesirable moisture, uneven mixtures, all the physical differentials between lumpy and finely comminuted ores, have had their influences. Then there are on the Cuyuna, more than in any other Lake Superior district, small operations under comparatively inexperienced direction, sometimes financed only through the sale of shares to the public by personal solicitations, and in cases under fixed output agreements. It has been comparatively easy to make ore buying subordinate to price dickering. None of these things tends toward a standard. But some improvement was expected this season; good demand, the elimination of several weaker concerns, a

better knowledge of the ores and their place in metallurgy, were all looked upon to stabilize them. And then comes this most surprising cut in price.

Very Fast Loading

No. 6 ore dock of the Duluth, Missabe & Northern road at Duluth is recognized as the fastest loading pier in the world; it has loaded entire cargoes of iron ore at the rate of less than 3 minutes per 1000 tons; its best record was the ship Kerr, which was loaded with 12,869 tons, in 30 minutes, or 2.3 minutes per 1000 tons. The dock records are as follows for the 12 best speeds:

Ship	Minutes at dock	Minutes shifting	Minutes loading	Tons loaded, gross	Minutes per 1000 tons
D. G. Kerr.....	75	45	30	12,869	2.30
D. G. Kerr.....	80	45	35	12,689	2.76
H. D. Williams..	105	60	45	12,638	3.56
N. B. Ream.....	75	30	45	11,889	3.79
W. A. McGonagle	135	60	75	12,837	5.81
H. D. Williams..	135	45	90	12,800	7.04
G. G. Crawford..	165	60	105	11,846	8.20
T. F. Cole.....	150	45	105	12,140	8.69
W. A. McGonagle	150	45	105	13,016	8.91
T. F. Cole.....	150	30	120	11,898	10.01
E. H. Gary.....	150	45	105	11,051	10.52
N. B. Ream.....	165	45	120	11,216	10.74

Coal cargoes were unloaded at Duluth docks last summer at a maximum speed of 1272 tons per hour, this being from the ship L. C. Hanna at the Berwind No. 2 dock.

The size of ore cargoes is steadily increasing; last season at the D., M. & N. dock they averaged 9455 gross tons, or 10,590 tons of 2000 lbs. each; at the Soo Line dock, handling Cuyuna range ores only, the seasonal average was 8820 gross tons, and the average cargo of all ore ships loaded at the head of Lake Superior for the year was 8447 gross tons.

Electric-Driven Shovels

Mention was made not long ago of the 300-ton field control electric-driven mining shovel ordered by the Hanna Ore Co. for its new Wabigon mine, Mesabi range. The company has been studying this type of shovel for some time, and has become so well convinced of the suitability of such a machine for Mesabi work, and so definitely advised as to the operating savings to result, that it will replace its steam shovels at La Rue mine also by this new type. The 300-ton steam shovel is rather an innovation in Lake Superior practice, having been introduced by another Mesabi range independent operator, Butler Brothers, but a short time ago. It is becoming common, and now there comes what seems to be another distinct forward step in the adoption by the Hanna company of this electric machine. These new shovels will cost considerably more than \$100,000 each.

A sale of a round tonnage of Cuyuna manganiferous has just been closed to a Chicago furnace interest at \$7.20 per ton. This will amount to a little better than \$5 at mine, a price that should be entirely satisfactory. It works out at old range non-Bessemer lease for the combined analysis, with a unit of manganese figured as equal to two units of iron. This ore runs about 0.25 per cent phosphorus; silica, 6 and 7 per cent; moisture, about 10 per cent; combined iron and manganese, 50 per cent. The mine is underground at present, though easily shipped by hydraulic methods.

The American Institute of Electrical Engineers held a two-day session at the William Penn Hotel, Pittsburgh, last week. This society has a large number of electrical engineers in its membership. On March 11, the members inspected the Westinghouse plant at East Pittsburgh.

Developments in Brass Melting—II*

Fundamental Advantages of the Electric Furnace—The Different Classes of Furnaces Discussed From Several Angles

—BY OTIS ALLEN KENYON—

AS was pointed out in our article which appeared in the Feb. 19 issue of *THE IRON AGE*, the present practice of brass melting originated several hundred years ago, and when we say present practice, of course we mean fuel-fired pit furnaces, such as are commonly used in foundries which melt brass for use in rolling and tube mills.

Brass melted in this way when properly done is about as good as any one could wish. However, when the process is applied on a large commercial scale, it is bound to result in certain unavoidable variations because the human element enters into every step and detail of the process.

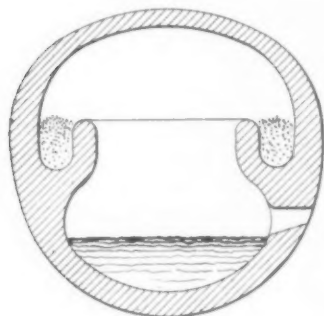
To keep ten or more fires right and take care of the same number of crucibles, putting in the spelter

result of which would be an inferior casting. To stand over the fires and stir the metal is an extremely hot and disagreeable job and yet the quality of the metal is dependent upon the thoroughness with which it is stirred. These are only instances which illustrate that the caster, in the execution of his work, must practically disregard the conditions under which it is done.

Composition Discrepancies

The crucible itself is often the cause of discrepancies in the quality of the metal, due to the fact that a slight leak has permitted a portion of the mixture to disappear into the furnace so that when spelter is added the ingredients of the brass will not be in the proportions expected. The proportions are also modified by various conditions which affect the volatilization of the zinc, so that, in spite of the most expert attention, the composition of brass made by the crucible process will vary and does vary more than most brass makers are willing to admit.

The composition is also affected by the furnace gases to which molten brass in a crucible is always exposed to a greater or less degree. In general, the action of these combustion gases is to change the chemical composition of the metal by oxidizing its ingredients and thus introducing impurities, as well as by removing a certain portion of the metal. The extent of the damage done by flue gases depends upon such factors as the temperature of the metal, the temperature of the gases, the composition of the gases, the velocity of the gases, the pressure of the air, and the perfection of the coating on the surface



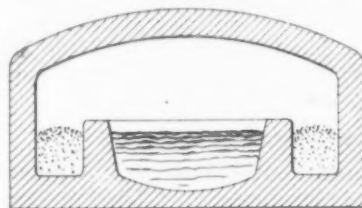
Electric Furnace in which the Heat is Produced Exterior to the Metal. In this case the heat is generated in a granular resistor and transmitted to the brass principle by reflection from the dome of the furnace

at the right moment, stirring and pouring at the right moment, is a full size job for the boss caster. There is a tendency among brass casters to use time as a guide in the execution of the various operations. However, this procedure cannot be relied upon for satisfactory results because of variations in the fuel, in the draft, in the weather, in the condition of the flue and in many other factors that may act to render any timing scheme for the various operations entirely unreliable.

In the last analysis it must be admitted that there is no positive way of determining just the right moment for carrying out the various important operations in the melting and casting of brass. It is simply a matter of experience, and even with experience as a guide if the man has not the will and the power he may not even do as well as he knows how. In other words, the character, disposition and moods of the men as well as their experience, enter into the making of brass by the crucible process.

Working Conditions

The second undesirable feature of the crucible process is due to the extremely disagreeable working conditions imposed upon the man. Even with the best ventilation they are subjected to poisonous fumes and extreme heat, and the more conscientiously they execute their tasks the worse the conditions they must tolerate. In the illustrations shown on page 529 of *THE IRON AGE* of Feb. 19, is shown a boss caster skimming a crucible with his head entirely enveloped in fumes. If he attempted to dodge the fumes, he would not be able to skim the metal as quickly and perhaps not as well, the



Furnace in Which the Heat is Produced Exterior to the Metal. Part of the heat is transmitted by reflection and part by direct conduction through the walls of the hearth that contains the brass

of the metal. Evidently the combined result of these various factors is beyond human power to determine, except under test conditions such as may be obtained in a well-equipped laboratory.

To sum up the crucible process of brass melting, it is sufficient to say that it is not susceptible of scientific control and therefore cannot be admitted as a satisfactory manufacturing process for the production of a uniform, high-grade product. Its possibilities are dependent entirely upon the individuals that operate it and the product can be controlled only by thorough inspection and conscientious scraping of all metal that is below the standard.

Possibilities of the Electric Furnace

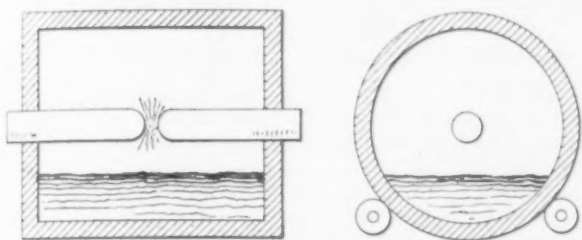
For a number of years brass makers have realized that the electric furnace offered many important possibilities for brass melting, but actual experiments were discouraging in that they revealed difficulties that for a number of years seemed insurmountable, or at least of sufficient importance to prevent the commercial utilization of electric furnaces for brass melting.

Before taking up the description of any particular type of electric furnace it may be well to con-

*The first article, which appeared in the issue of Feb. 19, told how the long-practised methods are giving way to the electric furnace. The author is engineer of Ray D. Lillibridge, Inc., New York.

sider the possibilities resulting from the mere substitution of electric heating for fuel heating. By looking at the problem in this way it will be evident that the electric furnace offers a solution of the brass melting problem only in the event that the proper type is chosen, and the mechanical design carried out in the light of experience in the melting of brass.

All electric furnaces eliminate the possibility of contamination of the metal from furnace gases



Type of Furnace in Which the Heat is Produced Exterior to the Metal and Transmitted by Direct Radiation to the Metal and the Walls of the Furnace. The heat is absorbed by the metal from the walls of the furnace as the furnace rotates

since there is no fuel used and therefore no gases generated.

All electric furnaces possess the possibility of heat control, but not all possess even the possibility of temperature control when the matter of temperature distribution is considered. In brass-making temperature distribution is of first importance, and a furnace that does not rapidly transfer the heat input to all parts of the metal without superheating any local portion, cannot be successfully employed.

On account of the fact that spelter floats on copper, it is necessary that provision be made for stirring the metal, and not all types of electric furnaces possess even the possibility of providing in a practicable way for this essential operation.

All types of electric furnaces may be so well insulated as to remove the disagreeable high-temperature conditions under which the men must work. Also any type of electric furnace may be mounted mechanically so as to facilitate the charging and pouring of the metal thus reducing to a minimum the skill and labor required.

All types of electric furnaces offer the possibility of inclosed operation, although the commercial realization of this possibility is not always possible. Spelter loss depends not only upon inclosing the space above the surface of the molten metal, but also upon the temperature, the temperature distribution, the pressure and the length of time that the metal stands in a molten condition. Consequently the effect of the electric furnace on spelter loss depends entirely upon the type and design of the furnace. Some electric furnaces would produce a spelter loss much greater than does the crucible process.

In short, the electric furnace offers the possibility of applying scientific principles in a commercial way; that is, an electric furnace designed to utilize all the possibilities presented should practically eliminate the personal element of the operator and render the process susceptible of accurate control in accordance with carefully worked-out plans.

Electric Brass Furnaces

Electric furnaces may be classified in various ways, depending upon the point of view. From a metallurgical standpoint the method of heat production may be classified as follows:

1. Heat produced exterior to the metal to be melted.

2. Heat produced on the surface of the metal to be melted.

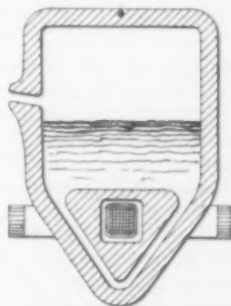
3. Heat produced within the metal to be melted.

The first method includes the separate resistor unit type in which the heat is generated in a special resistor and conducted to the metal to be melted through the walls of the hearth and by reflection from the arch or dome of the furnace. One disadvantage of this method is that special provision must be made for stirring. Then, too, the heat transfer from the surface toward the interior does not give favorable conditions for uniform temperature distribution throughout the mass of the metal.

Another type of exterior heat generation is the indirect arc. The disadvantages of this type are the same as in the resistor type except that the source of heat being more concentrated, the tendency to local overheating of the metal is correspondingly greater. In one type of furnace this tendency is combated by constructing the furnace in the form of a cylinder swung on its long axis and rolling it continually first in one direction and then in the other. In this way the metal is mixed, the heat absorbed by the walls is equalized by contact with the metal, and the surface of the metal nearest the arc is continually changed.

Another type of indirect arc furnace which is successful in overcoming the tendency to local overheating is of the same general form as the furnace described in the preceding paragraph, except that it rotates continuously in one direction and pours from an opening in the end, while the oscillating furnace pours from an opening in its cylindrical surface.

Other than these disadvantages this type of furnace when properly designed may possess all the



Type of Furnace in Which the Heat is Produced Within the Metal Itself—in This Case by Induction

advantages listed under the "Possibilities of the Electric Furnace." It also may be added that this method of heat generation is not the most efficient from the standpoint of energy economy and the size of the furnace is larger than necessary with either of the other two types.

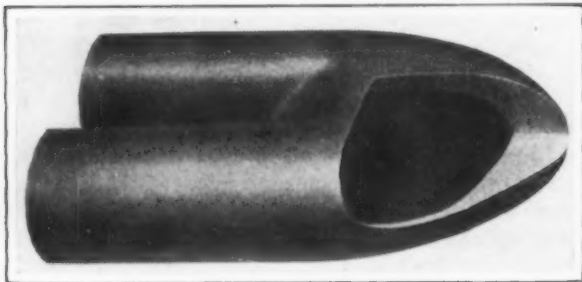
The second type, in which the heat is generated at the surface, is represented by a direct arc sprung between the surface of the metal to be melted and one or more suitable electrodes. This type of furnace on account of the excessive concentration of heat production is not considered suitable for brass melting and therefore will not be considered here.

In the third type the metal itself is utilized as a resistor, and the flow of electricity through the metal may be established by induction from a primary winding, or the electricity may be introduced through electrodes. The disadvantage of this type of furnace is that a molten charge is necessary to start it. When properly constructed to utilize pinch effect, motor action and heat circulation, this type of furnace can be built so that it will automatically circulate the metal and produce violent stirring with a resultant high degree of uniformity in temperature distribution.

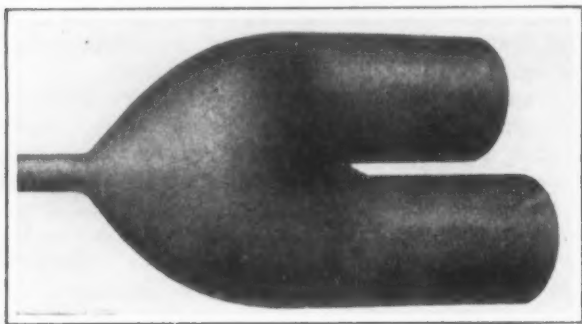
(To be concluded)

Forged Pipe Without Joints

Coils made of forged steel and iron pipes without joints, and designed for use in condensers, heating coils, stills, refrigerating coils, etc., are being manufactured by the Locomotive Superheater Co., 30 Church Street, New York. The completed coil is explained as practically a continuous pipe with the bonded end stronger than the body of the pipe. The absence of welded joints is emphasized as an important feature,



Forged Pipe Return. Made Without Joints. Showing Section. Below is a pipe return with support



especially when the coils are used for refrigerating or ice making purposes, as the construction is leak proof.

The metal of the pipe itself is the medium used in the processes of bonding and forging, no metal of any kind being added, and there is no reduction in cross section area of the return bend, also the shortest possible return without excessive pipe friction loss is obtained. It is pointed out that with this construction greater heating or cooling surface within a given space is possible. The coils are shipped as units ready for connecting up, thus eliminating pipe cutting, threading and fitting on the job. The coils are tested to not less than 800 lb. per sq. in. hydrostatic pressure.

W. I. Crocker on High-Speed Steel

At the regular meeting of the Dayton, Ohio, Purchasing Agents' Association on March 11, W. I. Crocker, general representative of the Vanadium Alloys Steel Co., Pittsburgh, delivered an address on the subject, "The King of Metals—High-Speed Steel." Mr. Crocker gave an interesting résumé of the manufacture of high-speed steel from the early days up to the present, paying particular attention to the progress made since the war started. He also discussed the heat treatment of steel, and gave those present some valuable information as to what to expect when purchasing high-speed steel.

Hack Saw Blade with Fine and Coarse Teeth

Hack saw blades having fine teeth at the toe and coarser teeth on the rest of the blade are a recent product of the Peerless Machine Co., Racine, Wis. The fine teeth are provided so that the toe of the blade will cut easily and true at slow starting speed, preparing the way for the faster cutting of the coarser teeth which come into play at high speed, as the rest of the blade enters the work. The fine teeth at the toe are explained as taking hold of sharp corners without chattering or jumping sideways, thus to produce an accurate cut and eliminate shelled teeth and broken blades.

The duplex blades are made in two types: all hard tungsten steel and flexible carbon steel. The former are for use by tool makers in cutting tough steels and by mechanics for general use. The carbon steel flexible type is hardened on the tooth edge only and is of best service where the material to be cut is of thin, irregular section, and where the work cannot be held rigidly in a vise or reached from an easy sawing position.

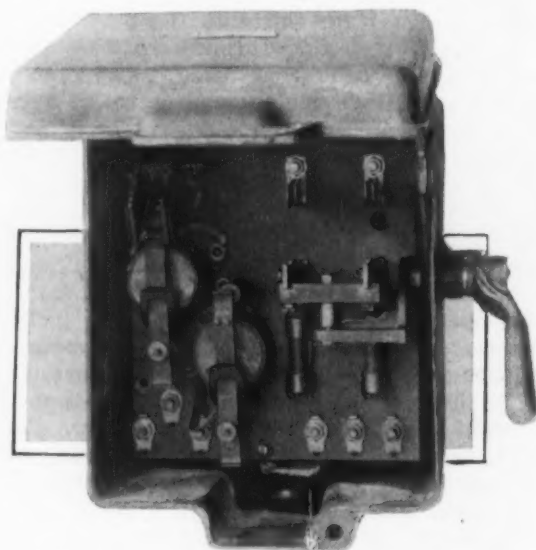
The blades are made in 10 in. and 12 in. lengths, $\frac{1}{2}$ in. wide, 0.025 or 23 gage thick. On the main part of the blade the teeth are 16 pitch and on approximately 2% in. of the toe end of the blade the teeth are 32 pitch.

Automatic Starter for Direct Current Motor

An automatic starter of the inclosed type which may be operated by a self-contained knife switch with external handle, or controlled from a remote point by a push button master switch, has recently been put on the market by the Cutler-Hammer Mfg. Co., Milwaukee. The starter is adapted for small direct current motors driving machines in light manufacturing operations where protection is wanted for the operator as well as the motor.

The equipment consists of an automatic motor starter panel of the counter e.m.f. type completely inclosed in a cast-iron case with a hinged cover. The automatic feature is obtained by an accelerating contactor which closes when the motor attains about three-fourths full speed, and automatically shunts out the starting resistor. A magnetic main line contactor mounted on the panel allows remote control from two push button switches of the momentary contact type. The motor is stopped by pressing the stop button or by voltage failure, which causes the main line contactor to drop out. By using a separate field rheostat speeds above normal can be obtained if the speed range does not exceed 2 to 1. A common snap switch, a float switch or a pressure regulator can also be used for remote control of the motor.

When remote control is not desired the magnetic



Starter Adapted for Small Direct Current Motors Where Protection Is Wanted for the Operator as Well as the Motor

main line contactor is omitted, and the motor is controlled by a fused knife switch mounted on the panel with an operating handle outside of the case. The handle can be locked in the open position to prevent unauthorized operation. Interlocks prevent lifting the cover while the switch is closed or throwing the switch with the cover opened. When the knife switch is used, low voltage release is inherent in the accelerating contactor. Low voltage protection is provided with three-wire push button control. The inclosing case is arranged for conduit wiring and can be mounted on a wall or any flat surface. The starter is for use with small direct current motors not rated over 2 hp. at 115 volts, or 3 hp. at 230 volts.

Churches Make Appeal to Steel Corporation

Edward T. Devine Addresses Meeting of Presidents of
Subsidiary Companies, Urging That a Positive Position as
to Collective Bargaining Be Taken by the Great Company

THE Social Service Commission of the Federal Council of Churches of Christ in America has just made public a statement by E. T. Devine, representing the council, to the president of the constituent companies of the United States Steel Corporation. Last November, while the steel strike was in progress, a committee of three consisting of the Rev. Paul Moore Strayer, Edward T. Devine and Shelby M. Harrison, was appointed on behalf of the council to call on Judge E. H. Gary, chairman of the board of directors of the United States Steel Corporation, to obtain such information as he might wish to give the council as to the reasons for his refusal to negotiate with the unions and as to the conditions in the industry which were under criticism. Subsequently Judge Gary invited Dr. Devine to appear before the presidents of the constituent companies of the corporation and to make such a statement as he might desire on behalf of the committee. At a fully attended meeting of the presidents on Dec. 18, with James A. Farrel, president of the corporation, in the chair, after a brief introduction by Judge Gary, Dr. Devine made an oral statement reported in the *Survey* of March 13, in part as follows:

"However, we are not here to-day to discuss this question. We assume that nothing that we could say would be likely to change your attitude in a matter in which your decision has been so clearly formulated and so frequently announced. We venture, however, to raise a more fundamental question: whether you have unions among your workers or not, and, if you have, whether they are craft unions, each controlling a particular group of workers, or of some different type such as that which would embrace all the workers of a plant; is it not fair to assume that the time has come when the Steel Corporation must devise and put into practice some affirmative policy for dealing collectively with its workers? We believe in the integrity of the labor movement, but we are not its spokesmen. Without in any way compromising the right of the unions to speak for themselves and to exert in their own way whatever influence they may establish, we think it reasonable to ask whether, in view of your decision not to deal with them you are ready to inaugurate any plan—any sincere plan of industrial relations in the steel industry which will satisfy the principle of democratic representation. There must be some industrial structure natural to the steel industry, and it should not be beyond the wit of the directors and officers of the company to discover this natural and appropriate form of organization. If it is not the unions, what is it? On this subject the statement of the social service commission to which I have referred has the following to say:

A deep cause of unrest in industry is the denial to labor of a share of industrial management. Controversies over wages and hours never go to the root of the industrial problem. Democracy must be applied to the government of industry as well as to the government of the nation, as rapidly and as far as the workers shall become able and willing to accept such responsibility.

"If the Steel Corporation would come forward at the present time with a statement that they will deal with their employees collectively; that they will make no discrimination against unions or against those who have been on strike; that there will be no reprisals for strike activity; that a scheme of industrial representation, whether originally proposed by the corporation or by the companies or by the men, shall be at any rate made satisfactory both to the companies and to the workers, and that, as the first problem to be dealt with, the elimination of the 12-hr. day shall be put squarely up to a representative council or conference, or whatever it might be called, in which workers are represented on some plan to which they have agreed—this would, I believe, not only settle the present con-

troversy, with good feeling, but might go far to influence the industrial development in other basic industries in the years immediately ahead. The introduction of such a labor policy would release enthusiasm and loyalty, creative interest and motive to hard work which would compensate for the entire cost of the 8-hr. day and any other improvements in the human side of the industry which you might decide to be desirable.

"However, you will understand that this is only a personal opinion. I have no authority, either from the workers or from the churches, to propose any specific plan. I am here, in connection with this matter as in connection with the 12-hr. day, merely to ask whether I may not carry some message of hope and encouragement to those who are anxious and have reason to be anxious about industrial relations; to those who believe, as we think that you believe, that boards of directors have not merely a financial responsibility for safeguarding the interests of stockholders, but also a human responsibility for safeguarding the interests of their workers. May we say to the churches that your attitude is not merely negative; that you have an affirmative labor policy which reasonable workers, conscious of their mutual relations to other workers, conscious of their responsibility for maintaining wages, standards of living, and freedom to associate with others for the promotion of their common purposes, might reasonably accept? Whatever you can say to us in these directions will be reported faithfully and carefully weighed by those who have no other desire than to help to clarify public opinion and to promote a fair understanding of the industrial situation."

Sound Advice of a Cardinal

His eminence, Cardinal O'Connell, metropolitan of the Catholic Province of New England and archbishop of Boston, who presides over 1,000,000 Catholics in the Boston diocese and easily 2,000,000 in New England, whose words on industrial conditions have attracted attention throughout the country, on Sunday, March 7, delivered an address to 4000 men in the Cathedral of the Holy Cross, Boston, which contained advice well worth repeating by priests in other sections of the country. The Cardinal said in part:

"My dear men, do not forget that work is a sacred thing. The world is being flooded now with a false philosophy, the chief purpose of which is to make men think that work is something accursed, something to fly from. On the contrary, work is a holy thing in itself, a blessed thing. It brings happiness and contentment.

"Of course we want, and I for my part shall do my share upon insisting that men are not overworked. That is wrong. But also I should fail either in doing my duty toward God or toward you if I allowed any system of false philosophy to pass under my eyes without rebuke, which tells you the less you work the better. That is false. A man is better physically, mentally and morally for just as much work as he can do consistent with his health and other duties. I know it, for I practice it myself. Therefore, don't be deluded, my dear men.

"Proper pay for work you must have. Proper, decent, just remuneration, but not continually and forever clamoring for more, as if there were no limit, for that would not only break up all industry, but break up all order. When there is a just grievance, it ought to be presented justly, calmly and reasonably, and then adjust it right.

"There are many forces in the State which prescribe the proper conditions of labor, toil and remuneration, and so it ought to be an easy question to settle. But

underneath that question, which is perfectly legitimate and right, that is, the proper labor of a man, under proper conditions, with proper remuneration, there is a diabolical spirit of discontent at work.

"And there is a spirit working also underhanded, even oftentimes among our Christian workingmen, to install into them little by little, strike, more strike, again strike and perpetual strike, and with the purpose of destroying all organization and all industry. That is the work of the devil, nothing short of it.

"Be on your guard against it. Have your own views, your own right Christian views about labor. We must have, we want to have, we must stand by the laborer; but in justice, and I am the first one to stand there, we must stand against this diabolical spirit of unrest, of discontent, of perpetual strikes, of unnatural and unjust demands.

"Love your work and give to it your joyful co-operation. Demand what is right and just. In return do what is right and just, and be careful not to be led blindfoldly by people who appear to be on the surface working for your interests, but who at bottom are working for the destruction of all interests."

The cardinal's address also contained much good advice regarding extravagant expenditure.

Westinghouse Electric Insures Employees

An insurance policy for \$500 will be given entirely without cost to every employee of the Westinghouse Electric & Mfg. Co. who has been in the service of the company for a period of six months or more. The plan is effective from March 1. In addition, the employees, after April 1, may increase the value of their policies to amounts varying from \$1,000 to \$2,000, depending upon their length of service and continuity of savings. All employees who have been in the company's service for six months or longer and who deposit a sum each payday in the employees' savings fund, equal to 2 per cent or more of their earnings, will receive not only 4½ per cent interest compounded semi-annually on such deposits, but in addition will automatically have their insurance increased to amounts up to \$2,000, depending on the length of time they have been with the company. For example, a man who has been in the service of the company for at least fifteen years and has regularly deposited in the employees' savings fund 2 per cent or more of his salary, on which he regularly receives 4½ per cent compound interest, is presented an insurance policy in one of the established companies for the sum of \$2,000 at no cost whatever to him. After an employee has maintained the required deposits for a period of five years he may discontinue or withdraw his deposits from the savings fund without in any way affecting the value of his insurance policy. In order to provide for cases where employees need money and do not wish to disturb their savings, and thus affect the value of their insurance policy, loans will be made by the company to the extent of 90 per cent of the amount to the credit of the employee in the savings fund, without in any way affecting the value of the insurance. This insurance is to be made effective at all of the various offices and plants of the Westinghouse Electric & Mfg. Co., and will affect approximately 50,000 people.

Strike for the Closed Shop

The strike called at the Beverly, Mass., plant of the United Shoe Machinery Corporation is attracting wide attention not only throughout New England and in other sections of the country where shoes are manufactured, but throughout the country as a whole in view of the principle involved.

The trouble is the outgrowth of several months of agitation by the I. W. W. faction of workers, who were bent on having a strike no matter what the issue might be. Several months ago the Salem Machinists' Union demanded a closed shop. The company refused to accede to this demand, and during the first week in March the demand was formally withdrawn. The labor leaders then demanded that the company refrain from making a contract of employment with any individual in its employ. There is no controversy as to wages, hours of labor or working conditions.

In other words, as now framed, the issue is simple, namely, shall an individual employee, who desires to work for the company and who desires to be sure of a continuance of his employment, be deprived of the right to enter into a contract by which the company agrees to employ him for such a period, and by which he agrees to work for the company. The contention of the union is aimed at the freedom of contract, which is the individual right of every American.

The company employs 5836. The strike was called March 5 and on that day and March 6 there were but 1171 who went on strike. On March 8 the union blacksmiths, pattern-makers, engineers, firemen and transportation department workmen were ordered to strike.

The officers of the last mentioned unions have decided to await the sanction of their national officials before quitting work.

In the meantime, all night work at the plant has been discontinued, the night employees being shifted to the day side, chiefly for their personal safety.

Washington has shown its hand in the situation, having directed Immigration Commissioner Henry J. Skefington, who is also commissioner of conciliation of the Department of Labor, to try to effect a settlement of the strike. This move was made as a result of an appeal by the strikers to Secretary of Labor Wilson to assign Commissioner Skefington.

In the World of Labor

Employers in the building trades in Harrisburg, Pa., have declared for the open shop, following notice from men in several unions that they would ask large advances in wages. The employers issued an announcement declaring that they would no longer adhere to the closed-shop principle and that union and non-union men could work side by side.

Puddlers in the dozen plants of the Reading Iron Co., Reading, Pa., have been notified of an advance of from \$11 to \$11.75 in the tonnage rate, effective March 1, on a two months' basis.

The strike at the axle plant of the Pollak Steel Co., Cincinnati, which was declared last summer, has been satisfactorily settled, and the men returned to work last week. The axle plant has been closed down since last August, all work of this character having been transferred to the Chicago plant. The Pollak company, which last December purchased the plant of the Interstate Steel Co. at Marion, Ohio, will, it is understood, double the capacity of this plant.

Work on a large number of buildings in Cincinnati is temporarily held up by the action of about 1800 union carpenters who are taking a "vacation." An agreement exists between the men and the contractors which has a year yet to run, the rate of pay to be 75c. an hour. The carpenters recently demanded \$1 an hour from March 1 to May 1, and \$1.25 an hour from May 1 to Sept. 1. The contractors were willing to compromise the matter at 90c. per hour, but this the workmen refused, and have given up work. A number of smaller contractors have acceded to the demands of the men, but the Master Builders' Association, with which the men have a signed agreement, refuses to pay the wages asked.

It has been announced by officials of the Baltimore Dry Docks & Shipbuilding Co., Baltimore, which practically had to close down because of a strike, that a large number of the strikers have returned to work and many more are expected back. The company regards the developments as bringing the end of the strike in sight and a victory of the open shop.

The Employees' Congress at the works of the Reliable Stove Co., Cleveland, a branch of the American Stove Co., has awarded a wage advance at the plant of about 11 per cent in hourly wage scale. The congress is composed of regular workers at the plant.

Effective March 5, the Southern Railway posted notices at its Richmond, Va., shops, reducing the working force by about 140 men, effective five days from time of posting. Insufficient work at the shops is said to be the cause for the action.

NEW MELTING FURNACE

Oil and Air Are Preheated Thus to Protect Crucible and Lining

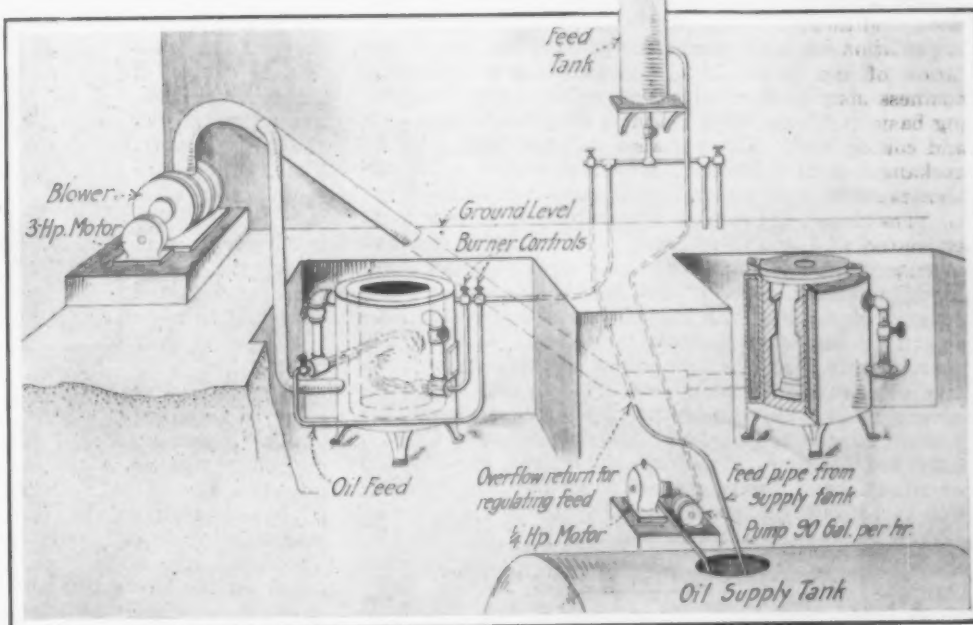
A new type of oil-fired furnace is manufactured in several designs to suit the needs of foundry, forge shop and heat treating plant by the Gaskill Furnace Co.,



The Upper Illustration Shows an Oil-Fired Gaskill Furnace, Provided with a Preheating Chamber, Through Which the Oil and Air Pass Before They Enter the Combustion Chamber. This arrangement is designed to give more complete combustion and to protect crucible and lining from the destructive effects of an inflow of damp, cold air.

The line drawing at the right is the arrangement of blower, oil tank, pump and feed tank for a two-furnace installation.

The lower illustration is a drawing, side view, of a tilting type of crucible furnace. The air and oil enter this furnace through the trunnions.



155 North Market Street, Chicago. In this device air and oil are preheated before they enter the combustion chamber. This provision not only makes for more complete combustion, but protects the crucible and lining from the destructive effects of an inflow of damp, cold air.

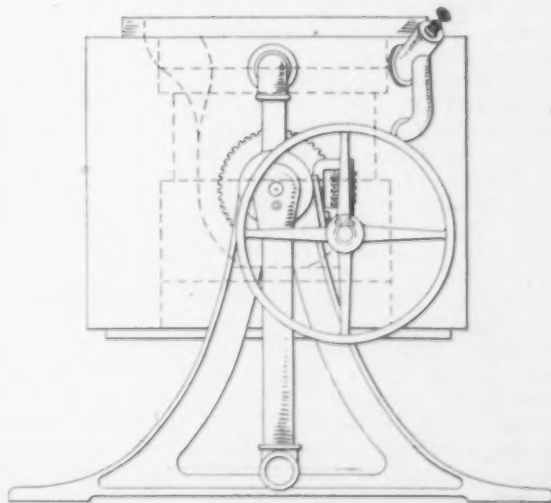
The preheating chamber of the furnace is constructed of sheet steel, with an outside diameter, in the case of No. 60 crucible size, of 34 in. and an inside diameter of 28 in. Referring to the accompanying half-tone illustration, the air enters the preheating chamber through inlet A, while the oil is forced in through pipes B and B'. From C to D the mixture passes into the interior of the combustion chamber, where ignition takes place. The pipe CD, and its counterpart on the opposite side of the furnace, enter the combustion chamber at an angle, thereby promoting circulation of the heat and uniformity in temperature and protecting the crucible from the destructive effects of a direct flame.

The combustion chamber is lined with Calo fire brick and is covered with a tile 5 in. thick and surrounded by a steel band. In the center of the cover is a combustion vent, 5 in. in diameter. The crucible, which is inserted through the top of the furnace, rests on a stool brick, which is indicated by dotted lines in the illustration.

The furnace uses from 7 gal. to 8 gal. of oil per

hr., with a running air pressure of about 1½ lb. and from 40 to 55 lb. of pressure on the oil. The air is supplied by a blower operated by a 3-hp. motor. The oil is forced into a feed tank, which is equipped with a pressure gage, by a pump operated by a ¼-hp. motor. The arrangement of blower, oil tank, pump and feed tank for a two-furnace installation is shown in one of the line drawings.

In a recent experiment conducted by the Gaskill company it is stated that a charge of low-carbon steel, estimated at 0.25 per cent, was melted in a No. 60 crucible in 1 hr. 8 min., a temperature of 1650 deg. C. being attained at the end of the first 20 min. The furnace is rated to give a first melt of steel regularly within 2 or 2½ hr., and subsequent melts, starting with a hot furnace, within 1 or 1½ hr. Two or three heats of bronze or brass, it is stated, can be melted in the time of one heat of steel. It will be observed that an initial heat takes longer than subsequent melts because of the time required for the furnace to bring the air from atmospheric temperature to a point necessary for satisfactory combustion. A prominent feature of the furnace is the fact that the air and the furnace are heated concurrently. The lining and the crucible are there-



fore not required to withstand the strain they would undergo if the air supply came directly from the atmosphere. By preheating the air, it is explained, the life of the lining is prolonged from six weeks to six months. The preheating feature is also emphasized as making for a saving of fuel.

The company will supply furnaces in sizes to fit

No. 30, 60, 100 and 200 crucibles and will manufacture other sizes to order. In addition to the stationary crucible furnace shown, three other types are made, a tilting crucible furnace, a muffle heat treating and forging furnace, and a stationary non-crucible furnace built on the open-hearth principle. In the tilting type, a side view of which is shown, the air and oil enter the furnace through the trunnions. This furnace has two additional burners which project their flame downward from the top of the combustion chamber. All of the larger sizes of furnaces, whether of the tilting or stationary design, are provided with these extra burners. The furnaces give a controllable temperature of from 800 to 3500 deg. Fahr.

The inventor of the furnaces is James A. Gaskill, for many years a practical foundryman and for the past decade connected with the Cleveland Hardware Co., Cleveland. Olin M. Caward is president and general manager of the Gaskill Furnace Co., which is manufacturing and marketing the furnaces.

Iron Ore Resources of France

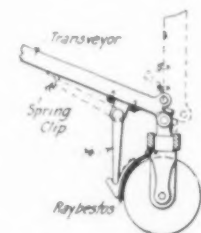
WASHINGTON, March 16.—A report on French resources of iron ore by Consul Ernest L. Ives, at Paris, shows that relatively France is in the same position as before the war in regard to iron and coal, having a superabundance of iron and an insufficiency of coal. This condition, Mr. Ives points out, will necessitate the importation of large quantities of coal, and the exportation of iron ore. It is thought that a reciprocal business may be done with England by France supplying basic pig iron, while England supplies furnace coke and coking coal. There is also an opportunity for an exchange with Germany, which possesses a superabundance of coal, and a limited supply of iron.

"The iron resources of France before the war were estimated at 3,300,000,000 tons, or 300,000,000 less than Germany, and 2,000,000,000 tons greater than England," says Mr. Ives. "New basins having been discovered since 1910, the French deposits are now estimated to be between 3,800,000,000 and 4,100,000,000 tons. Aside from the new mines discovered, the relative positions of Germany and France, due to the recovery of the Lorraine basins by France, are at the present time: Germany, 1,270,000,000 tons, and France, 5,500,000,000 tons. The exploitable iron ore deposits of Algeria and Tunis are estimated at from 100,000,000 to 150,000,000 tons."

Brake Attachment for Transveyor

A brake attachment for the Cowan transveyor lift truck and intended to ease heavy loads down inclines has been developed by the Cowan Truck Co., 712 Water Street, Holyoke, Mass.

A pendant, as shown in the accompanying line drawing, swings from a bracket on the transveyor handle and when it is desired to apply the brake this pendant is allowed to engage in a casting which is fastened to a strip of spring steel lined with raybestos and resting on the front wheel of the transveyor. The heavier the downward pressure on the handle the greater is the braking effect. When use of the brake is not desired the pendant is swung up out of the way as shown in the dotted position and is held to the handle by a spring clip.



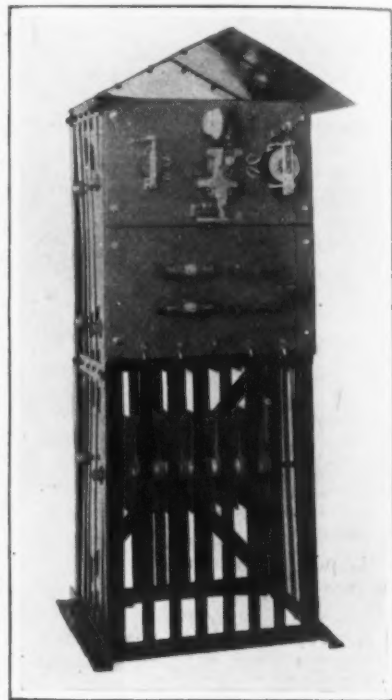
Brake Attachment For Cowan Transveyor

The employees who have been in the service of the Turner Construction Co., New York, for one year or more have just received policies with premiums paid by the company. The amount of insurance is \$500 after one year's continuous employment, plus \$100 for each additional year of continuous employment until a maximum of \$2,000 has been reached. A visiting nurse service is maintained by the insuring company in Boston, Buffalo, Philadelphia and New York.

Automatic Battery Charging Panel

For the automatic charging of mine locomotives having Edison storage batteries the charging panel shown in the accompanying illustration has been designed by the Cutler-Hammer Mfg. Co., Milwaukee. It may be connected to a 250 to 375-volt direct current circuit, since this is the service available at most mines. The equipment consists of a slate panel supported by a floor type mounting frame having the charging resistance self-contained. A sheet metal roof protects the charging resistance and the magnetic switches on the panel from the mine drippings. The switch equipment on the front of the panel consists of a main line knife switch with renewable fuses, magnetic main line contactor, voltage relay and shunt trip relay.

The main line contactor, which connects and disconnects the battery from the line, is controlled through the voltage relay and the shunt trip relay. The former prevents it from closing unless the line voltage is of sufficient value for charging, and causes it to open if the power fails or the line voltage drops below a predetermined value, thereby guarding against the batteries discharging back into the line. On restoration of the power after a power failure the main line contactor automatically recloses, and the charge is continued. The shunt trip relay is connected to the ampere-hour meter on the locomotive and when the battery is fully charged the ampere-hour meter will energize the relay, which in turn causes the main line contactor to open and disconnect the battery from the line. This relay also opens the contactor should the line voltage become too high. Thus the voltage and shunt trip relays permit charging only when normal conditions prevail on the line—that is, the supply voltage must lie between the limits for which the two relays are set.



Panel for Automatically Charging Mine Locomotives Having Edison Storage Batteries

Chicago Branch of Metal Trades Association

The Chicago Branch of the National Metal Trades Association held its annual meeting at the Mid-Day Club, Chicago, on March 11, with an attendance of 163. S. T. Nelson discussed "The Economic Relationship Between Employer and Employee," and John F. Hagey, vice-president First National Bank, Chicago, delivered an address on "The Money Market, Business and Foreign Exchange." John W. O'Leary, president of the national association, also spoke. Officers for the ensuing year were elected as follows: President, S. T. Nelson, Sullivan Machinery Co.; vice-president, Harold C. Smith, Illinois Tool Works; treasurer, William Ganschow, William Ganschow Co.; secretary, Paul Blatchford. These officers, with the exception of the secretary, are ex-officio members of the executive committee, which is also composed of the following: O. A. Olson, Simonds Mfg. Co.; Charles E. Finkl, A. Finkl & Sons Co.; L. A. Dolton, Weller Mfg. Co.; Charles H. Strawbridge, Goodman Mfg. Co.; A. C. Johnson, Link-Belt Co.; F. B. Mathis, Excelsior Motor Mfg. & Supply Co.

NO TAX REDUCTION

Demands of the Treasury Will Not Permit Lifting the Burden in the Near Future

WASHINGTON, March 16.—No reduction in taxation can be expected in the immediate future. Treasury Department officials are in favor of a revision of the present revenue laws, with the elimination of some provisions which place an undue burden upon business, such as the excess profit tax, but there can be no reduction in the total amount of revenue which must be raised in one way or another. Whether any substantial revision of the revenue laws will be undertaken until next winter's session of Congress, however, is doubtful. At that time general revision seems probable.

The inability of the Government to reduce taxes has been emphasized by several developments of the past week. The Supreme Court decision, holding that stock dividends are not taxable as income, has dealt a blow to Government revenues, to the extent probably of at least \$500,000,000. Treasury experts have roughly computed this amount as the possible sum total which may have to be refunded on previous tax payments, and the amount which it was estimated would be forthcoming from this year's taxes. It is impossible, however, to tell exactly what the loss of revenue will be. The Internal Revenue Bureau has issued orders to collectors to take care that all profits made by the sale of stock dividends are taxed as income. While under the Supreme Court decision the stock dividends are not taxable as income, yet any profit on their sale immediately falls into the income class. The Supreme Court decision has also affected taxation on income from personal service corporations. To make up for the possible deficit, Dr. Thos. S. Adams, taxation expert of the Treasury, has recommended a tax upon undistributed profits of personal service corporations.

Another recent decision of the Supreme Court may bring in some additional revenue. This was the decision which held that the act of Sept. 8, 1916, imposing a tax of 12½ per cent upon the net profits of manufacturers of munitions, is applicable to manufacturers making forgings to be finished by other makers into shells. This case involved a number of steel companies and many millions of dollars. The effect of it, however, was to sustain the validity of taxes already collected by the Government which certain companies sought to recover, and its result, therefore, may not bring in much revenue not counted upon already.

Secretary Houston's Position

Secretary of the Treasury Houston has taken a position squarely against any such reduction of taxation as proposed by former Secretary of the Treasury McAdoo. Mr. McAdoo evolved a scheme by which one billion dollars in taxes would be saved annually. His plan involved delaying the collection of a sinking fund tax, such as is to be imposed beginning with the year 1920, and also the issuance of some bonds in connection with the funding of deferred interest payments on allied loans. Secretary Houston is flatly against any issuance of bonds, and does not believe that the sinking fund provision should be tampered with. Sentiment among members of Congress also has been hostile to the McAdoo suggestion.

Another development which has called attention to the condition of the Treasury, and the impossibility of an early reduction in taxation, has been the movement in Congress for the enactment of soldiers' bonus legislation. There has been strong sentiment in Congress for the payment of a cash bonus of \$500, or of some amount based on the length of service of soldiers and sailors. The chief difficulty has been in the matter of raising the \$2,000,000,000 which would be required. Secretary of the Treasury Houston, Assistant Secretary Leffingwell, and Governor Harding of the Federal Reserve Board, appeared before the House Ways and Means Committee to discuss the revenue phase of the problem. They made such an impressive showing as to the dangers of attempts to raise additional revenues that the passage of any such legislation at this session

is now extremely doubtful. These officials were a unit in declaring that any bond issue would be disastrous to the country, and would seriously depreciate the value of outstanding bonds. Governor Harding declared that an interest rate of at least 6 per cent would be necessary to sell the bonds and Assistant Secretary Leffingwell went so far as to doubt if they could be sold even at that high rate of interest. It was pointed out that there are so many commercial demands for money at the present time that the selling of the bonds would be a far more difficult task than in war time. The alternative proposal that bonds be issued and distributed direct to the ex-service men was condemned as even more unwise than their sale to the public. It was asserted that ex-service men, receiving the bonds direct, would place them on the market to such an extent as to seriously affect the value of the present bond issues.

It was stated by Treasury officials that the only way to raise additional revenue would be by some form of tax. Assistant Secretary Leffingwell opposed a consumption tax, saying that a tax on sales, such as has been suggested, would unnecessarily add to the high cost of living. He stated that the only proper way to raise additional revenue would be by an increase in the normal income tax rate.

In view of the protests which would be certain to follow any proposal to increase normal income tax rates, it is considered very doubtful if the soldiers' bonus legislation gets far. The fact that Representative Mondell, of Wyoming, Republican floor leader, is opposed to it is significant as indicating what the fate of the legislation will be.

O. F. S.

Will Push Anti-Trust Cases

WASHINGTON, March 16.—The decision of the Supreme Court in the case of the United States Steel Corporation has not caused any change in the policy of the Department of Justice with reference to anti-trust prosecutions. This has been announced by Attorney General Palmer, following a study of the text of the court's decision holding the United States Steel Corporation and its subsidiaries not to be violating the anti-trust laws.

Attorney General Palmer stated that the anti-trust suits which are now pending will be pushed. It was declared that the court's decision did not necessitate any marked change in the general position of the Government on trust litigation, and that the failure of the Steel Corporation prosecution did not mean, in the opinion of the Department of Justice, similar decisions in the other pending cases. There are nine anti-trust suits now before the Supreme Court.

New Drop Forgings Plant

A branch of the Merchant & Evans Co., Philadelphia, will be established in Lancaster, Pa., without delay, according to announcements issued by the Lancaster Chamber of Commerce. The Lancaster branch will be devoted exclusively to the production of drop forgings for automobiles and will employ 300 men. Sites have been inspected by officials of the company, and the most satisfactory one purchased, with the purpose of starting work at once. Three buildings of concrete and steel construction will be erected. One will be 100 x 300 ft.; the second, 100 x 150, and the third, 50 x 200. Contracts for the construction have already been awarded to Austin & Co., Philadelphia.

Canadian Pacific Orders

The Canadian Pacific Railway has placed equipment orders, referred to in THE IRON AGE of March 11, totaling approximately \$15,000,000. These orders call for freight equipment including 2500 60-ton box cars; 500 refrigerator cars; 500 automobile cars and 67 ore cars. The passenger equipment includes 12 dining cars, 53 sleeping cars, 13 compartment cars and 24 baggage cars. The company itself expects to execute a considerable portion of the order, while it is stated that the Canadian Car & Foundry Co. will also receive a part of the business.

ESTABLISHED 1855

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The Uppermost Question

Three publications which reached an IRON AGE editorial desk in the same delivery of mail show to what extent current writing runs to the great need just now of increasing the supply of good will in industrial relations.

First was a shop paper published by a western steel foundry company for distribution among its employees and customers "in the interest of fellowship." As part of its platform it carries the following from a recent expression of the head of the company, Clarence H. Howard:

The science of the relation between employer and employee is human engineering, for we must have humanities as well as mechanics, which means in plain words treating men as men, not as machines. The welfare of the man is more important than tools and machinery, for the man thinks, and acts according as he thinks. It is not what we say about human engineering, but what we understand and practice of what we say that brings results. We must so conduct our business that it will command the respect and co-operation of the six factors in business which must be co-ordinated, namely, the employee, the employer, the man from whom we purchase, the customer, the stockholder and the public.

No. 2 was an annual calendar message sent out by a publisher in the Middle West. It was entitled "The Spirit of the Second Mile," and laid it down as a principle, from the "go with him twain" of the Sermon on the Mount, that the road to success lies in an employee doing more than the law requires. Inferentially the same preachment was applied to the performance of the employer.

No. 3 was an editorial prominently displayed on the first page of a technical journal devoted to mining. It was headed "The Panacea" and the suggested cure for the unrest and revolutionary spirit abroad in the world—a suggestion singularly like that given above—was thus stated: "(1) Give more work or service than you receive compensation for. By earning more than you are paid for, the employer becomes your moral debtor, and you are put in a superior position. (2) Lend a hand to those just beneath you in opportunity or station."

These three examples, taken thus at random from a single batch of mail, are proof of the para-

mount place now given to the question of human relations in industry. What is most noteworthy in these and many other preachments on causes and cures of the prevailing world distemper is the high ground the writers have taken. Bitterness and recriminations get nowhere. "Come, let us reason together" must be the formula for any approach to the question that is to result in real gain.

Better Railroad Operation

It will be interesting to see how large a saving the railroads will be able to make from the greater efficiency of working forces under the resumption of private control. Some results have already appeared. The tendency under Government operation was to keep full payrolls, and it is well known, apart from the story told by balance sheets, that individual performance was by no means up to that of pre-war or early war time. State laws prescribing full crews, unreasonable as some of them are, will continue to hamper operating departments; but these laws will not prevent the running of longer trains in many cases and the adoption of other measures that may make possible the same volume of traffic with a diminished number of crews.

Already there is testimony to an improvement of morale in some railroad office forces due to the first steps that have been taken toward the elimination of unnecessary or incompetent workers. Precisely the same report came from the metal-working industries just after the armistice when the prospect was that with the return of men from the army there would be many more available workers than jobs. Later, as militant and even revolutionary plans carried the day in union after union the benefits of the early improvement in shop morale were lost, and with continued advances in living costs and the failure of measures aimed at profiteering, production fell off instead of increasing. It remains to be seen to what extent railroad labor developments will parallel that experience. That railroad managers will put forth every effort to improve upon the service the public has had under Government operation and that the railroad unions for the

most part will not share in this desire for a better showing are factors whose net result is not easy of appraisal. Certainly the railroads will have shippers and the traveling public with them in every attempt to get greater efficiency. What travelers have seen already in the betterment of train service encourages the hope that further progress will be made toward the restoration of the standards of competitive days.

Mr. Campbell's Wise Counsel

Few employers in the United States have given such earnest and untiring thought to the welfare of their employees as has James A. Campbell, president of the Youngstown Sheet & Tube Co. The fact that his plant, with many others, suffered during the steel strike last fall has not discouraged him, for he still has the good of the men at heart, and is striving to do everything in his power to help them. His latest address to the more than 12,000 employees of the company is worth special mention.

Mr. Campbell points out again that one chief cause of the high cost of living is universal extravagance. He says that the adoption of national prohibition should save the people of this country more than \$6,000,000,000 per year, but apparently the money spent for liquor and beer is now being spent in other ways. People have not given up the habit of spending all their earnings. Mr. Campbell remarks that if the money that might be saved from our national liquor bill were placed in the saving banks, it would help materially to solve the financial problems of this country, as well as those of other countries now appealing to us for financial help.

Referring to the high wages now prevailing, especially in the steel industry, Mr. Campbell warns his employees that this condition cannot continue, for that would be contrary to all experience. He drives home economic facts, showing very plainly how present high prices are caused by demand for almost everything exceeding the supply. He does not overlook the low purchasing power of the dollar, but uses that as further argument for economy.

"It should not be forgotten," says Mr. Campbell, "that the dollars we are spending so thoughtlessly are really only 50-cent dollars now, but if saved they will soon be worth 100 cents in terms of what they will buy. Extravagance at this time is, therefore, double extravagance. The 50-cent dollar we spend now not only helps to keep the cost of living from coming down, but it will never be a 100-cent dollar for us."

In urging the men to put their savings in the bank, make payments on a home or in some way provide for the future, the address adds that they will miss the money no more than when paying for Liberty bonds or spending it in the saloons.

Mr. Campbell's message will be of great value in bringing home facts which, while they are well known, cannot be too often impressed upon those who are going ahead recklessly spending their money. Moreover, it is admirable for the interest it shows in the company's employees and the president's evident desire to keep in contact

with them. Although the problems of the world are tremendous, every man, with whatever influence his position gives him, can do his part in bringing about a solution.

Japan's Large Purchases of Steel

Throughout 1918 and 1919, and even up to the present time, those in close touch with trade movements in iron and steel have had occasion to comment on the new place Japan has taken as a market factor. While the scale of Japanese buying during the war was not surprising, the fact that it has been expanded since the armistice has been a matter of no little speculation.

Elsewhere is presented an analysis of the steel exports to Japan in 1913; in the three war years of 1916, 1917, 1918, and also in 1919. The striking fact is that our total steel exports to Japan last year exceeded by a large margin those for either 1917 or 1918, being 606,400 gross tons, against 368,000 tons for 1918, and 490,100 tons for 1917. In 1913 the total for the same class of exports was only about 48,000 tons.

In the 1919 shipments to Japan, steel plates, rails, structural steel and tin plate are the features. While the steel plate total, 243,600 tons, was twice that of 1918, the high record was 257,700 tons, in 1917. In 1913 these exports were less than 7000 tons. Rail exports in 1919 were 152,900 tons, or nearly twice the 1918 movement, and over seven times that of 1913. Japanese demand for structural steel last year was larger than in any war year, and over five-fold that of 1913. In tin plate the 1919 shipments were 45,460 tons, while in 1913 they were only 227 tons.

In this connection an analysis of Japan's iron and steel trade with Great Britain is interesting. Of products classified as to destination, Japan in 1913 took 183,800 gross tons of British iron and steel, or four times the imports from the United States. In 1919 Japan's imports from England were only 60,300 tons, or one-tenth those from the United States. British tin plate exports to Japan fell from 28,200 tons in 1913 to only 205 tons in 1918, recovering to 13,200 tons last year. In galvanized sheets the decline was from 35,500 tons in 1913 to none at all in 1918, recovering to 5500 tons last year.

Japan's activity in other lines is equally significant. Her purchases of scientific instruments of all kinds have called forth much comment. There are those who find in the preparations for offense and defense represented in these large tonnages of iron and steel, as well as of non-ferrous metals, ground for the prediction that Japan is to be the Germany of the East. It is certain that industrial expansion there, not only in iron and steel but in other lines, is on a very large scale and growing larger steadily. As a manufacturing and maritime nation, Japan will soon take a prominent place. How much of a rôle as a steel or iron producer that country will play remains to be seen, but new undertakings in these lines are numerous. Many developments point at least to an increasing dominance of Japanese influence in Oriental trade, as well as in the carrying trade of the Pacific.

Non-Ferrous Exports in 1919

Only recently have details been available of our exports in 1919 of the three leading non-ferrous metals, copper, lead and zinc. Foreign demand for copper fell far below not only any war demand but that of 1913. Exports of lead were relatively heavy last year, though naturally considerably below war buying. Those of zinc were surprisingly heavy, exceeding by a large margin any exports prior to the war.

Exports of refined copper last year were less than for any year in seven, being 438,160,800 lb., or only about 40 per cent of the peak of the war movement in 1917 and less than 50 per cent of the exports in 1913, which were 926,241,000 lb., then regarded as very heavy. At that time Germany was the heaviest buyer, having taken one-third of the 1913 exports. Last year Great Britain was the largest purchaser with France second and Italy third. Complete statistics would probably place Japan close to Italy as a buyer, for Japan has been the most conspicuous new factor in this market recently. The absence of normal domestic consumption combined with the lull in foreign demand explains the present extreme dullness in the copper market. The fact that in 1913 alone Germany and Austria bought over one-third of this country's copper is warrant for the belief that before 1920 is well along, some of this demand will reassert itself. One of the surprises of the 1919 data is that Great Britain purchased nearly as much copper as in 1913, while Italy and Sweden bought far more than in that year.

The feature of the lead exports last year was the buying by Japan, whose purchases were nearly one-fourth of the total, or 23,687,700 lb. out of 102,036,600 lb., Great Britain having been the only other larger buyer. France took twice as much lead last year as in 1917, while Sweden is credited with nearly nine times as much. One of the surprises has been the shipment to China, there having been 1,273,100 lb. last year as against only 174,480 lb. in 1917.

MARITIME SALVAGE

Britain After World's Salvage Work—Under Water Flame-cutter and Former American Boats Used

LONDON, March 5.—Reports from the American Chamber of Commerce in London indicate that Britain's maritime salvage industry is being greatly developed and is out to capture the world's salvage work formerly almost entirely in the hands of Dutch and Norwegian firms. The first firm in the field is the Maritime Salvors, Ltd., who have acquired from the Admiralty a permanent base of operation at Newhaven.

A flame-cutter so devised that an oxy-acetylene flame can be used under water, by means of which holes are cut in the sides of sunken vessels for cargo and machinery salvage, is one of the latest equipments.

The company has bought two of the finest salvage vessels of the United States navy, which have been renamed. These are fitted up with the latest searchlights, line throwing guns, hoisting machinery for cargo, arc welding plants, rock drills, and numbers of other devices for modern salvage work. The crews have been picked from men who took part in Admiralty salvage work during the war.

The feature of the zinc exports of 1919 was their volume as compared with 1913 and even with some of the war years. The 1919 exports were 243,830,400 lb., which compares with only 15,565,324 lb. in 1913. The largest war movements were 403,919,700 lb. in 1917 and 387,702,700 lb. in 1916. Here again last year Japan was the spectacular buyer though not the largest, her purchases having been 36,301,700 lb. against none in 1917 and very little in 1918. An interesting fact is that last year Great Britain absorbed nearly one-half of the total exports and nearly 70 per cent of her war demand in 1917.

An unusual factor in all the non-ferrous markets except that for copper has been the fluctuations in the pound sterling, domestic prices and even buying having been largely under the influence of the foreign markets. This has been particularly marked in zinc and tin. An approach to more normal international conditions is practically certain to stimulate copper exports and surely will not hamper foreign demand for lead or zinc.

The establishing, within the last few weeks, of nearly a half dozen new local chapters of the American Steel Treaters' Society emphasizes anew the importance of and growing interest in steel heat treatment. This organization which is scarcely more than two years old, now has 17 local organizations, each holding monthly meetings for the discussions of the latest developments in its field. Its first annual convention and exhibition last fall was a marked success. It is only comparatively recently that the possibilities of correct heat treatment of steel on a commercial scale have been made a reality. There is now the possibility also that a new field may be embraced ultimately in the scope of the new society or another one—the heat treatment of non-ferrous metals and alloys. That the application of steel treating processes to the non-ferrous field is full of promise has recently been suggested and in fact demonstrated.

German Prices for Copper and Brass Sheets

German prices for copper sheets have been advanced 11,500 to 45,050 marks per ton, according to the London *Ironmonger* of Feb. 14. Brass sheets are now 33,500 m. and brass bars 23,500 m. per ton. Surcharges on all kinds of screws have been increased by an average of 33 1/3 per cent.

The verdict rendered by the jury in the Federal District Court of Detroit, in the case of the Government vs. Burt Harris, iron and steel dealer of New York, and Monroe H. Bardach, Albany, N. Y., completely exonerated both defendants. The case in which they were involved was that in which one Grant Hugh Browne claimed to have been the successful bidder on the iron and steel offered for sale by the Detroit Ordnance Office and offered to sell the contract to Messrs. Harris and Bardach. The Government maintained that Browne had obtained the contract through fraudulent means. Browne was found guilty.

The Alloy Electric Steel Casting Co., Massillon, Ohio, will begin at once construction of a plant at Warren, Ohio, on a five-acre site donated by the Board of Trade. The plant will be devoted to production of automobile parts, castings, jobbing and mill work.

LARGER STEEL INGOT OUTPUT

February Daily Average Was the Highest in Many Months

The production of ingots by steel works in the United States in February is estimated at 3,409,644 gross tons, as compared with 3,218,711 tons in February, 1919, an increase of 6 per cent. Daily output last month averaged 141,694 tons for 24 working days. While February had 29 days there were five Sundays, so that the number of working days was the same as in February, 1919. If the production rate of last month was kept up for a year the output would be 44,066,680 gross tons, based on 311 operating days. The figures given below are from reports to the American Iron and Steel Institute from 30 companies which in 1918 made 84.03 per cent of the country's output. In 1919 no statistics were gathered for the period of the steel strike:

Monthly Production of Steel Ingots of Companies Producing 84.03 Per Cent of Total in 1918—Gross Tons

	Open Hearth	Bessemer	All Other	Total
January, 1919....	2,351,153	749,346	7,279	3,107,778
February	2,043,635	655,206	5,842	2,704,683
March	2,100,528	555,332	6,405	2,662,265
April	1,732,447	500,770	6,494	2,239,711
May	1,506,015	414,392	8,617	1,929,024
June	1,692,257	521,634	5,328	2,219,219
July	1,875,630	625,246	7,300	2,508,176
August	1,988,651	748,212	9,218	2,746,081
January, 1920....	2,241,318	714,657	10,687	2,966,662
February	2,152,106	700,151	12,867	2,865,124

U. S. Cast Iron Pipe Co. Loses

A loss for 1919 of \$503,703 after charges, expenses and taxes was suffered by the United States Cast Iron Pipe & Foundry Co. as revealed in the annual report of President L. R. Lemoine. Lack of business is the chief cause of the poor showing. The report says:

"Your company suffered from repeated car shortages and the consequent irregular deliveries of raw material and the added expense in handling and shipping your product; and in addition from the continued indifference and lassitude of certain classes of labor, to say nothing of the difficulties resulting from strikes and an abnormal lack of efficiency and ability to produce. The average production of tons per man employed in the shops of 1919 was about one-half while the average wages paid by your company were more than double those of 1915. Your company, with all others, will operate under fairer and more equitable conditions when the sober second thought of the American workman overcomes the present uneconomic and evil slogan of 'fewer hours and more pay' and with a return to more normal thinking—realizes that increased production is the certain cure of present high living costs.

"The demand for your product increased materially towards the close of the year and your bookings for the last quarter, especially in December, were unusually heavy, considering that the orders were chiefly for pipe of the smaller diameters on which sizes your capacity is now fully occupied and will be for some time. On the larger diameters, 24-in. and over, specifications of considerable moment are now in prospect, for certain municipalities and public service corporations cannot much longer safely postpone the laying of larger diameter mains. Even before the war, these buyers had allowed their needs for large pipe to remain in abeyance to an abnormal degree. Bookings from December last through the first quarter of 1920 will closely approach, if not exceed, your total shipments in 1919."

Net operating loss in 1919 was \$76,214 against a profit of \$1,541,581 after maintenance, taxes, adjustments of inventories, etc., of the year before. A depreciation reserve of \$424,706 was provided last year.

Tate Jones & Co., Inc., Pittsburgh, works at Leetsdale, Pa., has bought the equipment and good will of the American Shop Equipment Co., Aurora, Ill., builders of oil and gas fuel furnaces for heat treating and forging steel, and will continue to operate the plant. The American Shop Equipment Co. retains its name

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and will likely engage in some other line of manufacture. Reports that Tate, Jones & Co. would move the equipment from Aurora to Leetsdale are incorrect.

The banking firm of Kidder, Peabody & Co., Boston and New York, together with John F. Alvord and George W. Goethals & Co., Inc., New York, have acquired the controlling stock interest in the Automatic Straight Air Brake Co., which is arranging to enter actively into the manufacture and sale of this new type of air brake equipment. Negotiations are in progress for acquiring manufacturing facilities and the company should soon be on a productive basis. John F. Alvord is president, and H. I. Miller and H. B. Hunt are vice-presidents.

Edwin S. Todd, Southington, Conn., has been made permanent receiver for the Rowe Calk & Chain Co. of that place, manufacturer of anti-skid chains for automobiles, patent jacks, etc.

CORRESPONDENCE

Metric Measurements on Howitzer Work

To the Editor: The communication published in your issue of Jan. 29, under the heading "Compulsory Metric System Bill," signed by A. E. Fulton, vice-president International Motors Co., interests me.

Opposition to most advanced ideas comes from those whose financial interests may suffer, if they are adopted. When electric motor drive of machine tools was advocated and demonstrated to be practical, desirable and economical twenty years ago, builders of machine tools opposed and discouraged its adoption. Their only reason was because it meant the redesigning of their product to provide for the heavier cuts and greater speed of the work made possible by electric power and high speed steel. But, it came into general use just the same and has saved millions of dollars in power bills and has been the means of tremendously reducing costs and increasing output.

The metric system is of almost universal use. Great Britain and the United States are the only countries of importance which still cling to the weights and measures of barbaric days. The monetary system of England is equally complicated but she is now strongly inclined to "metric" money such as most other countries including ourselves now use. Why did our ancestors abandon the pound and make the dollar with its metric subdivision our standard? For the same reason that England now contemplates a change to the metric subdivision—simplicity of calculation.

The writer for some six years has lived in fourteen various European countries using the metric system but never in all that period discovered a "dual standard" to which Mr. Fulton alludes. Weights or measures were always metric and nothing else. During the war, the writer served as inspector of ordnance on the French 155 mm. howitzers. These were made from French drawings and consequently by metric measurements. Hundreds of parts were made by more than a hundred different manufacturers and these parts assembled at the plant at which I was located. Eight hundred men were employed and directly under my supervision and every one of them using the metric tools and measuring devices necessary to the work. It required but a few minutes to explain the use of metric rules and men became proficient in their use in a few days or less.

This was but one of many contracts executed in this country by the metric system of measurement and, as a result, thousands of workmen are now thoroughly familiar with it and acknowledge its greater simplicity.

There was no confusion, which Mr. Fulton asserts would result from its adoption, and no one familiar with the metric system will deny that great accuracy is more easily attained and with less difficulty than by the system now in use. This, I believe, is confirmed in the fact that the inch has been reduced to decimal equivalents in order to work with greater ease when close tolerances are required. And the metric system is a "decimal" system in which it is only necessary to move the decimal point to indicate a greater or lesser quantity. It is identical with our monetary system.

Mr. Fulton's assertion that "if the metric system had possessed any merit it would have been put into use in this country long ago, not by force of law but by that of expedience" presumes to make the adoption or rejection by the United States of devices or ideas of merit the acid test. In this assumption he has overlooked the history of the airplane, which failed absolutely of recognition until the French had developed it to its present high standard. And even to-day this wonderful piece of mechanism instead of being developed and utilized to the utmost by the country of its origin, is being allowed gradually to drop behind the progress of foreign countries. Does this prove that the airplane and the dirigible, with which less has been done here in this country, are of no value?

The arguments of Mr. Fulton are the arguments

of every manufacturer whose pocketbook is touched by whatever changes or progressive steps are undertaken. The adoption of the metric system, it is true, will cost our manufacturers a great deal of money, but the increased popularity of our products in foreign markets with the increased business which is certain to accrue will soon compensate for their loss.

FRANK G. BOLLES,

Late Lt. Col. Ordnance, U. S. A.

Chicago, Ill., March 8.

COMMENT ON THE ABOVE

Had our correspondent investigated the textile industries of France, Germany, Italy or Austria, the building trades of Germany, the lumber industry of any country, the purchase and sale of land in France outside the cities, or navigation anywhere on earth, he would have found them, one and all, based on old, non-metric units of measure. Recent information from a mechanical engineer after three years' residence in Norway and Sweden shows that in Swedish machine shops they have not merely a dual but a quadruple system—a compound of the old Swedish, new Swedish, metric and English systems, and that in Norway the situation is identical except that they have no new Norwegian system.

These things are proved to the point of weariness such that an observer who reports that he has not found them does no more than show the superficial character of his own observations. Mere negative testimony has no weight against the overwhelming array of facts that has now been accumulated.

No one claims that there is any serious difficulty in making many things to the metric system, and to cite cases in which it has been done proves nothing.

It has been shown, again to the point of weariness, that the problem before us is not the introduction of metric units, but the getting rid of English units, and unless that is done we will have a dual system which inverts all claims that have been advanced in support of the metric system, such as simplicity of calculations, et al.

The man who believes that we can get rid of the inch in machine shops, the mile and acre in land measurement, or the ton-mile in railroad freight rates certainly has a large capacity for believing the impossible.
—EDITOR THE IRON AGE.

The Metric System in the Laboratory

To the Editor: I note in your issue of March 4 the following in a communication: "In the chemical laboratory the metric system is used. It is there because it has advantages in chemical work." In volumetric determinations there certainly is a positive advantage; in gravimetric determinations I fail to find any after nearly 50 years use of both metric and English weights. While I was in university work I was enthusiastic in favor of the metric system; subsequently, in actual business work, I find many disadvantages so far as laboratory determinations were concerned. Practically I use now but two units—the cubic centimeter and the micromillimeter. There is a convenience about the size of the cubic centimeter that is attractive, and I use it in all burette determinations. For the same reason, in the measurement of dust particles, the micromillimeter is a very convenient dimension. It is practically the dimension of a dust particle that belongs to the floating matter of the air. In the still air of my laboratory it requires from 6 to 10 hr. to fall a distance of 8 ft.

So far as my own work is concerned, this includes all the advantages of metric dimensions.

It is assumed that the earth is a true oblate spheroid; but it is not. It is assumed that the meter is one ten-millionth part of the earth's quadrant; but it is not. It is assumed that the standard meter rod exactly represents the calculated meter; but it does not. It is assumed that one kilogram is the exact weight of one cubic decimeter of water at standard conditions; but it is not. Nor is the cubic decimeter exactly one liter.

What then is the basis of the metric system? It is

merely an arbitrary length which stands for nothing. Convenience is the only practical basis for units of dimension.

Whatever may be the defects of the Fahrenheit scale of thermometry, the centigrade scale is an atrocity in comparison. Here is a week's record in the terms of each:

Day	Fahr. Deg.		Cent. Deg.	
	Max	Min.	Max.	Min.
1	40	13	4.5	-10.6
2	38	17	3.5	-8.5
3	47	19	8.5	-7.2
4	44	28	7.0	-2.2
5	47	34	8.5	1.1
6	30	13	-1.1	-10.5
7	30	12	-1.1	-11.0

For the greater part, three columns and a decimal point are required in centigrade records. With the Fahrenheit records two columns are required; a split degree is rarely necessary. With the centigrade scale a split degree and, in winter, the frequent use of the minus sign are necessary.

The enforcement of a measure which makes the offer to sell a yard, a pound, or a quart of a commodity an offense punishable by imprisonment is not apt to put an end to the unrest made apparent by sumptuary laws.

J. W. REDWAY, F. R. G. S.

Meteorological Laboratory,

Mount Vernon, N. Y., March 12, 1920.

Testing Riveted Joints

To the Editor:—While other departments of iron and steel have been fully investigated, it looks as if riveting has been somewhat neglected. Still it is a vital question to-day, especially when the increased activity in shipbuilding is considered.

The mathematical formulas for calculating strength of riveted joints assume that these are perfectly made, which in the hurry of hastening work is not always the case. Many conditions enter into the making of a good rivet joint. It has been abundantly demonstrated that the working of low carbon steel has to be finished at a certain temperature in order to obtain the smallest sized crystals and the most even distribution of ferrite, cementite and pearlite. If steel is heated to red and then allowed to cool slowly without working, large crystals are developed. Then again if it is worked too cold internal strains are created and the cleavage between the crystals further developed, making the steel brittle. Wrought iron, being amorphous, can be riveted cold without any internal strains. It is therefore important that the rivets should be heated uniformly to the proper temperature. It is obvious that this cannot be done by keeping a number of rivets in a coal fire fed by fan blast.

It cannot be avoided that some rivets will be overheated to near the melting point and that occasionally some blast will strike them, causing the steel to oxidize. Furthermore, the low carbon steel is liable to absorb carbon from the coal and also sulphur, developing more or less of red-shortness. The only way to heat rivets properly seems to be by electricity, using a furnace of good construction. With a pyrometer attached the heat can be kept uniformly at the proper temperature, and the rivets will be heated and delivered just as rapidly as from a coal fire. The small portable electric furnaces can be carried with wires attached. The electric heat is concentrated on the rivets, while in a coal fire much coal is burned without the heat touching them. The latter also entails the expense of carrying coal and ashes.

Below $\frac{1}{2}$ -in., rivets cannot keep the heat long enough and riveting has to be done cold. To avoid brittleness, therefore, fibrous wrought iron rivets should be used.

When steel plates are punched they get brittle to a small depth around the hole. This can only be remedied by reaming or annealing, both of which would be impracticable in shipbuilding. A partial annealing is, however, effected by contact with the hot rivet. The punch forces some metal out through the die in the shape of a sharp projecting edge, which increases as the die grows larger and the punch smaller by wear.

In the hurry to make many holes the conditions of the punch and die are often overlooked. If the projecting edge is not removed by reaming it will be imbedded in the rivet head. A sharp corner in steel is next to a crack, but a projecting edge is the same as a serious flaw. The proper way to make holes in steel plates is to drill them, and this can be done with little additional expense and loss of time by using a good multiple drilling machine. Drilling also has the advantage in that the holes will also be more accurate in size and spacing.

In order to find out how far the above named conditions influence the riveted joints, experiments along the following lines are suggested: The test pieces should be cut strips of steel plate joined with two rivets:

- 1.—Pulling tests showing the ultimate strength and elongation, also demonstrating whether the heads of the rivets will be torn off or the rivets sheared at the middle.
- 2.—Bending tests by having one end of the plate fixed and the other rocking back and forth until the break occurs, counting the number of movements.
- 3.—Shock tests by having a weight fall longitudinally and transversely on the joint.
- 4.—Influence of temperature below freezing on the above tests.
- 5.—Microstructure photographs of cuts, through the riveted joint, polished and etched.

The specimens should consist of rivets worked too hot, cold, entirely cold, and at the right temperature; refined puddled iron rivets worked cold; Norway iron rivets worked cold; steel rivets in punched holes with projecting edge, with edges removed, and in drilled holes.

The results of these tests would show how far it would be advisable to spend more care on making riveted joints even with some sacrifice of the quantity of production.

N. LILIENBERG.

283 Rochelle Avenue,
Wissahickon, Pa.

Refractories at Pittsburgh

Manufacturers of refractories in the Pittsburgh district report a very active demand for their products, prices ruling firm and operations being as close to 100 per cent of normal as supplies of raw materials and labor will permit. Several manufacturers state an advance in prices on first and second quality fire brick in the near future is not unlikely. Prices of different grades of refractories, quoted by Pittsburgh manufacturers, range as follows:

Fire Clay Brick, First Quality, Per 1000, f.o.b. Works

Pennsylvania	\$41.00 to \$45.00
Ohio	41.00 to 45.00
Kentucky	41.00 to 45.00
Illinois-Missouri	35.00 to 40.00

Fire Clay Brick, Second Quality, Per 1000, f.o.b. Works

Pennsylvania	\$30.00 to \$35.00
Ohio and Kentucky	25.00 to 35.00
Illinois-Missouri	30.00 to 35.00

Silica Brick, Per 1000, f.o.b. Works

Pennsylvania	\$40.50 to \$50.00
Chicago	45.50 to 55.00
Birmingham	46.50 to 51.50

Magnesite Brick, Per Net Ton

9 x 4½ x 2½	\$80.00 to \$85.00
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Chrome Brick, Per Net Ton

9 x 4½ x 2½	\$75.00 to \$85.00
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Bauxite Brick, Per Net Ton

55 per cent	\$40.00 to \$45.00 base
76 per cent	100.00 base

The rail carbon steel bar mill at Marion, Ohio, purchased by the Pollak Steel Co. from the Interstate Iron & Steel Co. some time ago, will be enlarged. Plans provide for a 60 x 200 ft. addition to the main plant and the construction of a new 150 ft. rolling mill. It is also planned to establish a mill cafeteria and furnish meals to the workmen at cost. The improvement will involve an expenditure of about \$300,000 and will practically double the present capacity of the mill.

LaBelle Iron Works Annual Report

The annual report of the LaBelle Iron Works, Stuebenville, Ohio, for the year ended Dec. 31, 1919, was issued last week. The income and statement of surplus for the year are as follows:

Net earnings from operations after deducting charges for maintenance and repairs to plant of \$1,763,071.84.....	\$3,432,826.07
Add—Other income	419,962.76
Total income for the year.....	\$3,852,788.83
Deduct:	
Provision for exhaustion of minerals and extinguishment of lease values	\$517,214.69
Provision for general depreciation	750,000.00
Interest on mortgage bonds....	123,107.81
	1,390,322.50
Net earnings for the year.....	\$2,462,466.33
Deduct—Special charges:	
Provision for federal income and war profits taxes	207,852.95
Surplus for the year.....	\$2,254,613.38
Deduct—Dividends:	
Preferred stock 8 per cent.....	\$793,232.00
Common stock 8 per cent.....	793,232.00
	1,586,464.00
Balance	\$668,149.38
Add—Surplus at Jan. 1, 1919.....	10,122,948.29
Surplus carried to balance sheet.....	\$10,791,097.67

The company produced in the year 436,033 tons of ore, 421,999 net tons of coal. Its by-products coke plant produced during the year 318,857 net tons of furnace coke, 823 tons of domestic coke and 31,553 net tons of breeze coke; also 5510 net tons of sulphate of ammonia, 4,228,879 gallons of tar and 1,015,037 gallons of benzol.

The production of pig iron was 185,759 gross tons; ingots, 291,004 tons; billets and slabs, 248,009 tons; finished steel, 304,770 tons.

The aggregate value of the shipments for the year was \$18,705,774.33, compared with \$31,646,211.53 for the previous year.

Truscon Steel Co. Reports

Gross sales of the Truscon Steel Co., Youngstown, Ohio, increased from \$1,080,442.94 in July to \$12,520,568.37 in 1919, announces President Julius Kahn, following the yearly meeting in Detroit. The company's balance sheet, as of Oct. 21, 1919, shows net tangible assets of \$6,425,735.99, equivalent to 257 per cent of the preferred stock, and net quick assets of \$3,628,576.59, or 145 per cent of such stock. The company has no funded debt.

After providing for Federal taxes the average yearly net income from Jan. 1, 1916, to Dec. 31, 1919, was \$912,829.67; estimated net income for the calendar year 1919 was \$760,000 and will be \$1,500,000 in 1920, President Kahn estimates. This advance is attributed to greatly increased sales made possible by enlarged capacity production.

The company has \$5,000,000 capital, divided equally between common and preferred. Of the common \$1,444,650 is authorized and all of the preferred. Par value of both grades of stock is \$10.

The Truscon company was incorporated at Detroit in 1903 and manufactures the Kahn building products and other material used in reinforced concrete construction and concrete road building of every description, including steel rods, metal lath, trussed bars, column hooping, structural pressed steel sashes, steel windows and the like.

The Kelsey Wheel Co. last year enjoyed the greatest increase in business of its history, earnings being equivalent to \$14.26 per share on the common stock, compared with \$5.72 per share in 1918. Sales in 1919 amounted to \$21,843,160, or \$11,506,846 more than in the year before.

Earnings of the Standard Screw Co. for 1919 were equivalent to \$30.04 per share on the common stock, against \$45.52 for 1918. Net profits for 1918 and 1919 were \$1,187,613 and \$900,704 respectively. Surplus after all charges was \$251,156, a falling off of \$286,909.

Successful Year for Worthington Corporation

Earnings of the Worthington Pump & Machinery Corporation for 1919 were equivalent to \$17.29 per share, as compared with \$16.45 per share the year before, according to the annual report. Net profits for last year were \$3,257,064 after all charges and taxes. The billings for the year reached a volume of \$32,074,592, about 23 per cent of which was in completing war orders, the balance being normal commercial business. Billings in 1918 amounted to \$43,443,485, and the greater per share profit last year was due to a decline in the amount reserved for taxes and a slight drop in charges. During the year the directors authorized additions and betterments to buildings and equipment of \$1,907,883. President C. P. Coleman states: "The cash requirements of the corporation continue to be heavy, owing to the increasing volume of business and to the fact that it now requires \$2 in working capital to carry on operations that prior to the war were done by \$1." On Dec. 31, 1919, the sum of \$1,500,000 was added to the general reserve, now totaling \$5,000,000, to provide for any unforeseen depreciation of investments and securities.

Increased Production Convention

WASHINGTON, March 15.—Seeing in increased production a means of restoring normal business and price conditions, the Chamber of Commerce of the United States, it was announced to-day, will make its eight annual meeting, to be held at Atlantic City, April 27 to 29, an "Increased Production Convention."

This subject is considered of such importance that in working out a program for the meeting every topic will be considered from this viewpoint. The general subject of increased production has been divided up in the program for the convention into sub-subjects. The first to be taken up will be the government in relation to production.

The second general subject to be taken up will be transportation in relation to production. This will include both land and water transportation. International finance and its relation to world production has a prominent place on the program.

Sloss-Sheffield Earnings Increased

Though operating profits for 1919 were smaller than the year preceding for the Sloss-Sheffield Steel & Iron Co., the surplus earned was larger because no loss was suffered on coke ovens, whereas in 1918 the company deducted \$2,502,959 for faulty by-product coke ovens. Earnings were equivalent to \$16.25 per share on the common stock, against \$15.03 per share of the year before. Federal and State tax payments fell from \$1,000,000 in 1918 to \$420,000 the following year. Operating profits last year totaled \$3,276,197. A balance of \$1,025,826 was added to previous surplus, bringing the profit and loss balance to \$7,088,267.

American Steel Foundries' Earnings

In the words of the annual report of the American Steel Foundries, "in spite of the fact that the purchase of cars and locomotives for the year was smaller than for any similar period for the past 20 years, the earnings of the company must be considered as satisfactory." Earnings for 1919 were equivalent to about \$7.50 per share on the common stock. The report mentions the purchase of the Griffin Wheel Co., "with its nine well-located and well organized plants manufacturing cast iron car wheels," whose business came from replacement rather than new orders. In Detroit the company built a plant to manufacture automobile springs, incorporated as the American Autoparts Co., which "should be able to begin operations about the middle of the year."

The American Steel Foundries has been making coil and elliptic springs for cars and locomotives for over 15 years. The company's prosperity in 1919 is attributed to: "The business which was carried over from the preceding year and manufactured from raw

materials, the prices of which had been reduced to market values at the first of the year; to the settlement of claims and absorption of reserves in connection with war business from our own and foreign governments; to the earnings of the Griffin Wheel Co. for the last half of the year."

President Lamont predicts: "Any considerable amount of railroad business added to the present volume of general business will still further add to the scarcity of labor, increase our costs and make operating conditions generally just that much more difficult. The effect of these unfavorable operating conditions may be reflected in earnings."

Earnings, after deducting manufacturing, selling and administration expenses, were \$6,107,825. Net balance carried to surplus amounted to \$4,210,634. Stockholders will meet March 18 to consider increasing the number of shares of common stock from 515,520 of \$33.33 each to 750,000 of the same par value.

Earnings of Railway Steel Spring Co.

The Railway Steel Spring Co. earned \$16.16 per share in 1919, compared with \$18.37 per share the preceding year, according to the 1919 report. After all charges and taxes earnings were \$3,194,353. A surplus of \$1,169,353 was added to the previous balance of \$10,362,651. According to President F. F. Fitzpatrick: "During the early part of the year 1919 the production of the company was large, due mainly to orders for material for export received during the latter part of the preceding year. There was a falling off in new business during this period, which was reflected in a reduced production for the last half of the year. Before the end of the year, there was marked improvement in domestic and some improvement in foreign business, which still continues." President Fitzpatrick expects large orders for locomotives, passenger and freight cars in 1920 in which his company will participate.

Colorado Fuel & Iron Report

The financial report of the Colorado Fuel & Iron Co. for 1919 shows gross sales of \$34,405,218, compared with \$48,233,575 the year before. Net earnings were \$3,299,003, against \$7,464,368; total net income was \$3,725,055 and \$8,101,111 for the two years. According to the report, "In the belief that the unfavorable conditions caused by low demand for our products and the strikes were but temporary, your directors felt justified in continuing the payments of dividends for the year on both common and preferred stock, amounting to \$1,186,993 out of accumulated surplus."

Industrial Finances

The 1919 report of the National Enameling & Stamping Co., New York, shows a surplus after charges and Federal taxes amounting to \$3,807,073, which is equivalent after the preferred dividends, to \$24.41 a share on the company's \$15,591,800 common stock. In 1918 the company earned \$13.94 a share on \$2,773,265 common stock. The total income last year was \$5,814,610, as compared with \$5,072,650 in 1918, \$6,460,780 in 1917, and \$3,679,762 in 1916. The profit and loss surplus on Dec. 31 last was \$8,230,604; at the close of 1918 it was \$7,158,523, and at the close of 1917 was \$5,919,028. Its total assets and liabilities on Jan. 1 last were \$45,695,001, contrasted with \$41,324,128 on Jan. 1, 1919.

The New London Ship & Engine Co., Groton, Conn., reports for the year ending Dec. 31, 1919, a net income after all charges, but before Federal taxes, of \$400,330, as compared with \$134,321 for 1918.

The earnings of the Studebaker Corporation last year were the largest in the history of that organization. The net profits after war taxes amounted to \$9,312,284, which after allowing for preferred dividends is equal to \$28.54 a share on the common stock; in 1918 the company earned \$10.39 on its common stock; in 1917, \$9.11 a share, and in 1916, \$26.14. The

company last year sold 39,356 automobiles, as against 23,864 in 1918, 42,357 in 1917, and 65,885 in 1916. President Erskine, in his remarks to the stockholders, says in part: "The production of the Detroit plants in the first two months of this year (1920) is the greatest on record, and 198.4 per cent more than last year. Our schedule for the year calls for 80,000 cars. Orders received in the vehicle division for the first two months are for 10,183 wagons, as against 1480 last year, and this department also is oversold."

A public offering of \$400,000 8 per cent preferred stock of The A. C. Gilbert Co., New Haven, Conn., manufacturer of steel toys, is being made at \$100 a share and accrued dividends.

The Chapman Machine Co., Terryville, Conn., has increased its capitalization \$16,725, by an issue of 677 shares of common stock, par \$25, bringing the total outstanding stock up to \$120,000.

The Clinton-Wright Co., Worcester, Mass., wire products, has called in all outstanding first preferred stock, payable at 110. Dividends on the stock cease April 1, next.

The Mansfield Sheet & Tin Plate Co. stockholders have approved an increase in the capitalization to \$3,500,000, to provide funds to pay for extensions.

The Otis Steel Co., Cleveland, will issue an additional 7 per cent cumulative preferred stock not to exceed \$5,145,850 par value, the proceeds of which will be used for its sheet mill extensions. Holders of common stock will be given the privilege of subscribing at par and accrued dividend at the rate of one share of preferred for each eight shares of common. The company has outstanding \$4,830,600 in preferred stock.

Additional capital requirements of the Standard Parts Co. are provided in a loan of \$6,000,000, the arrangement for which has just been announced in Cleveland. Five of the foremost Cleveland banks and The Chase National of New York, together with Otis & Co. and Borton & Borton, investment security houses of Cleveland, are behind the big parts concern in this financing.

The Simonds Mfg. Co., Fitchburg, Mass., saws and files, has increased its capitalization \$1,000,000 by an issue of 10,000 shares of preferred stock, par \$100, bringing the total capitalization up to \$3,000,000. There are now outstanding 20,000 shares of common stock and 10,000 preferred. The new stock, which will be underwritten, is to be first offered common shareholders. H. K. Simonds is treasurer of the corporation.

The 1919 report of the Stewart-Warner Speedometer Corporation, Chicago, shows net profits after expenses, depreciation and Federal taxes of \$1,963,574, which is equivalent to \$4.90 a share earned on the company's 400,000 outstanding common shares. In 1918, the corporation earned \$15.94 on its capitalization.

Stockholders of the Western Electric Co., Chicago, have authorized a new issue of \$50,000,000 seven per cent cumulative preferred stock, of which \$35,000,000 will be presently outstanding and will take the place of six per cent preferred stock which was called for redemption.

Stockholders of the American Radiator Co. have adopted an amendment to the charter which provides for a reduction in the par value of the common stock from \$100 to \$25 per share.

The sinking fund trustees have completed arrangements for the eighth annual drawing of bonds for the sinking fund of the United States Steel Corporation 5 per cent bonds, due in 1963, \$2,006,000 bonds having been drawn for redemption at 110 and interest on May 1. Up to June 20, last, \$23,753,000 of these bonds were redeemed and held alive in the sinking fund. Originally they were issued in 1903 for the purpose of retiring preferred stock, for the purchase of the Tennessee Coal, Iron & Railroad Co., and for improvements.

Iron and Steel Markets

HANDICAPS CONTINUE

High Output Statistics a Surprise to Producers

British Shipyards Buying Plates Freely—Conflicting Prices for Basic Iron

Reports from the leading steel producing centers still dwell on the struggle with short coal supply and with scarcity of cars and motive power. Similar reports prevailed throughout February and yet the official statistics given out in the past week show steel ingot production in that month averaging 142,000 tons per day, or almost a high record rate. The trade is frankly surprised at these figures, in view of existing handicaps.

Chicago is alone in reporting better mill operations than in some weeks. At Youngstown some plants have worked at only 25 per cent of capacity. The Pittsburgh situation is little changed, delivery of coal by river barges being a large factor there.

On the demand side the market shows little change. The pressure for finished material is not so urgent as in February, but it is evident that the conditions which have dominated the market for so many weeks are likely to change only gradually.

New activities of labor organizers at various steel works districts, including Gary, are a subject of comment in the trade and latest strike plans are presumed to center about May 1. Reports of preparations for a second strike have been circulated for several weeks, but the willingness of workers to repeat so soon their heavy sacrifice of wages is doubted.

Chicago is the principal source of rolling stock orders, those of the week including 100 locomotives and 4000 cars. For the latter 28,000 tons of steel has been placed. The first rail order for next year, 9000 tons, has been given by the Missouri Pacific to the Colorado mill.

Leading roads report that with so small a percentage of their cars in their own hands, any estimate of needed car repair work or probable purchases of new cars may be long deferred.

The situation as to automobile sheets remains unaffected by the increase in ingot production. One Detroit company offered \$100 per ton at Cleveland for open-hearth sheet bars for conversion. One Ohio steel company made its March adjustment on sheet bars at \$70.

Notwithstanding various reports the Steel Corporation still adheres to the finished steel prices of March 21, 1919. The extent to which the American Steel & Wire Co. has sold wire products on the basis of the price ruling with it at time of delivery does not appear, nor is it certain that this policy actually points to an advance in its prices.

How little effect high prices and more or less delivery uncertainty have had on building work is indicated by the large volume of fabricated steel bookings, which amounted to 95 per cent of the capacity of the country's shops in February. It is the largest month's business for two years and compares with an average rate of contracting over eight years of 53 per cent. Much of this work goes

for constructing extensions to industrial plants.

The minimum prices for the major lines of finished steel on large orders for reasonable delivery appear to be reaching a level of 3.25c., Pittsburgh, for shapes, 3.50c. for bars and 3.75c. to 4c. for plates.

English shipyards are sounding the market for upward of 10,000 tons of plates on which 4c. and possibly 3.75c. has been quoted. Of the 300,000 tons of shipbuilding material recently bought from the United States Shipping Board, 20,000 tons have been sold to England, 8000 tons to Italy and 10,000 tons to Japan, with 15,000 tons likely to go to Scotland. Two Danish shipbuilding projects have been abandoned on account of high prices. Thus far March has developed a larger export business than was put on the books in the first half of February.

Prices on bar iron are \$10 a ton higher than were ruling a few weeks ago on the general run of sizes, with smaller sizes \$20 higher.

The basic pig iron market presents interesting and conflicting phases. While the merchant sellers of such iron are holding firmly to \$43 at furnace and have made some sales at that figure, several steel companies whose steel works have not been able to operate to full capacity owing to unfavorable conditions have sold some of their basic iron at about \$41.50 furnace, and at least one company has made even a lower quotation. Increased inquiry for pig iron has developed in the East, coming from radiator, locomotive, railroad and other large melters, and the foundry market is very firm in that section with a tendency toward higher prices. An Ohio melter of basic is in the market for 15,000 tons and a Central Western consumer for 10,000 tons. Bona fide inquiries for fully 20,000 tons of foundry iron for export are pending in New York and it is expected that some sales of fair tonnages will soon be made.

Domestic ferromanganese is stronger at a minimum of \$180, delivered, for last half. Almost no British alloy is available and spot and March sales have been made at \$230, delivered, a new high level since the war.

Pittsburgh

PITTSBURGH, March 16.

While the coal situation in the Pittsburgh district is probably not any worse than it has been for two or three months, it is certainly not any better, and in the Wheeling and Youngstown districts it is decidedly worse, reports being that operations of steel works and finishing mills in the Youngstown district are not over 25 per cent of capacity, while in the Wheeling district, the entire Bessemer plant of the Wheeling Steel & Iron Co. was down tight till last week and one of its blast furnaces was also banked and is still out. The situation promises no early relief, for while the railroads have gone back to private ownership, it will take them some considerable time to find themselves, get things going smoothly and also secure more motive power and cars before they can promise any permanent relief. One authority here claims that in the Chicago district there are 10,000 cars loaded with coal that are not being moved to consumers, for the reason that the railroads lack the motive power.

The Pittsburgh district is fortunate in the fact that some of the largest steel companies own their own coal

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Fig Iron, Per Gross Ton:	Mar. 16, 1920	Mar. 9, 1920	Feb. 17, 1920	Mar. 18, 1919
	1920	1920	1920	1919
No. 2X, Philadelphia...	\$45.35	\$45.35	\$45.35	\$33.35
No. 2, Valley furnace...	41.00	41.00	42.00	28.00
No. 2 Southern, Cin'ti...	43.60	43.60	43.60	34.60
No. 2, Birmingham, Ala...	40.00	40.00	40.00	29.00
No. 2, furnace, Chicago*	43.00	43.00	43.00	31.00
No. 2, del'd, eastern Pa...	44.80	43.40	41.40	33.90
Basic, Valley furnace...	41.50	41.00	43.00	30.00
Bessemer, Pittsburgh...	43.40	43.40	43.40	33.60
Malleable, Chicago...	43.00	43.00	43.50	31.50
Malleable, Valley...	42.00	42.00	43.00	31.50
Gray forge, Pittsburgh...	42.40	42.40	42.40	31.40
L. S. charcoal, Chicago...	57.50	57.50	57.50	38.85

Rails, Billets, Etc., Per Gross Ton:	Mar. 16, 1920	Mar. 9, 1920	Feb. 17, 1920	Mar. 18, 1919
	1920	1920	1920	1919
Bess. rails, heavy, at mill	\$45.00	\$45.00	\$45.00	\$55.00
O.-h. rails, heavy, at mill	47.00	47.00	47.00	57.00
Bess. billets, Pittsburgh...	60.00	60.00	58.00	43.50
O.-h. billets, Pittsburgh...	60.00	60.00	58.00	43.50
O.-h. sheet bars, P'gh...	65.00	65.00	60.00	47.00
Forging billets, base, P'gh...	80.00	80.00	75.00	56.00
O.-h. billets, Phila...	64.10	64.10	64.10	47.50
Wire rods, Pittsburgh...	70.00	70.00	65.00	57.00

Finished Iron and Steel, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
	1920	1920	1920	1919
Iron bars, Philadelphia...	4.25	4.25	4.25	3.145
Iron bars, Pittsburgh...	4.25	4.25	4.00	2.90
Iron bars, Chicago...	3.50	3.50	3.50	2.92
Steel bars, Pittsburgh...	3.75	3.50	3.00	2.70
Steel bars, New York...	4.02	3.77	3.27	2.97
Tank plates, Pittsburgh...	3.75	3.50	3.50	3.00
Tank plates, New York...	4.02	3.77	3.77	3.17
Beams, etc., Pittsburgh...	3.25	3.00	2.70	2.80
Beams, etc., New York...	3.52	3.27	2.97	3.07
Skelp, grooved steel, P'gh...	2.75	2.75	2.45	2.70
Skelp, sheared steel, P'gh...	3.00	3.00	2.65	3.00
Steel hoops, Pittsburgh...	4.00	4.00	3.50	3.30

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

† Silicon, 1.75 to 2.25. ‡ Silicon, 2.25 to 2.75.

mines up the Monongahela River, and haul their coal largely by barges to their plants, so that to some extent they are independent of the railroads. This applies to the Carnegie Steel Co., the Jones & Laughlin Steel Co., Crucible Steel Co., Pittsburgh Steel Co. and others.

The pressure on the blast furnaces for delivery of iron is very strong. Shipping conditions are bad, as the furnaces cannot get enough cars, and when they do get a few cars they are short of labor to load them promptly. Some of the pig iron men here say they are spending most of their time looking up shipments, having cars traced and trying to get iron to consumers who need it so badly. In the Pittsburgh district, lack of coal is keeping down output of steel fully 25 per cent, but the situation is much worse in other districts. It is hard to find any mills that are selling material, most of them being sold up for months, and operating conditions being so bad they do not care to take on more obligations until the coal and transportation situation shows some signs of getting better.

Prices during the week steadily held their own, but the amount of new tonnage going on the books of the mills is relatively small. Many consumers are anxious to get on the rolling schedules of the mills for last half delivery, but the amount of business being taken for last half is relatively small. With a period of good weather, it is believed that the railroad situation would soon show some betterment, but anything like ideal shipping conditions will not be reached until the railroads can fortify themselves with more cars and motive power.

Pig Iron.—Two or three steel mills, including one in the East, whose steel works and finishing mills are handicapped in operation by the shortage of coal and lack of cars to ship finished material, find they are accumulating some surplus basic iron, and as these concerns are self contained, having their own ore and coke, they are offering basic iron in open market at

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Mar. 16, 1920	Mar. 9, 1920	Feb. 17, 1920	Mar. 18, 1919
	1920	1920	1920	1919
Cents	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	5.50	5.50	5.00	4.70
Sheets, galv., No. 28, P'gh.	7.00	7.00	6.50	6.05
Sheets, blue an't'd, 9 & 10.	4.50	4.50	4.25	3.90
Wire nails, Pittsburgh...	4.00	4.00	4.50	3.50
Plain wire, Pittsburgh...	3.50	3.50	3.50	3.25
Barbed wire, galv., P'gh.	4.45	4.45	4.45	4.35
Tin plate, 100-lb. box, P'gh.	\$7.00	\$7.00	\$7.00	\$7.35

Old Material,

Per Gross Ton:	Mar. 16, 1920	Mar. 9, 1920	Feb. 17, 1920	Mar. 18, 1919
	1920	1920	1920	1919
Carwheels, Chicago...	\$35.00	\$35.00	\$38.00	\$21.00
Carwheels, Philadelphia...	42.50	42.50	40.00	23.00
Heavy steel scrap, P'gh.	27.50	27.00	28.00	14.00
Heavy steel scrap, Phila.	25.00	25.50	25.00	14.00
Heavy steel scrap, Ch'go.	24.00	23.50	24.50	15.50
No. 1 cast, Pittsburgh...	34.00	34.00	34.00	18.00
No. 1 cast, Philadelphia...	40.00	40.00	39.00	21.00
No. 1 cast, Ch'go, net ton	37.50	37.50	38.50	22.00
No. 1 RR. wrot, Phila.	36.50	36.50	36.50	20.00
do., wrot, Ch'go (net)	20.75	26.00	26.00	15.50

Coke, Connellsville,

Per Net Ton at Oven:	Mar. 16, 1920	Mar. 9, 1920	Feb. 17, 1920	Mar. 18, 1919
	1920	1920	1920	1919
Furnace coke, prompt...	\$6.00	\$6.00	\$6.00	\$4.00
Furnace coke, future...	6.00	6.00	6.00	4.25
Foundry coke, prompt...	7.00	7.00	7.00	5.00
Foundry coke, future...	7.00	7.00	7.00	5.50

Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
	1920	1920	1920	1919
Lake copper, New York...	18.37½	18.50	19.25	15.00
Electrolytic copper, N. Y.	18.25	18.37½	19.00	14.75
Spelter, St. Louis...	8.50	8.60	8.75	6.12½
Spelter, New York...	8.85	8.95	9.10	6.47½
Lead, St. Louis...	9.00	9.15	8.50	5.00
Lead, New York...	9.37½	9.50	8.75	5.25
Tin, New York...	62.25	60.25	60.00	72.50
Antimony (Asiatic), N. Y.	11.00	12.00	11.62½	6.75

prices somewhat less than merchant furnaces will name. One local steel interest has been a free seller of basic iron recently, and while the claim is made that its basic iron is not always of standard analysis, yet more than 80 per cent of it meets the requirements of the consumer, and this company has sold lately some basic iron, first at \$41.50 at furnace, and later at lower prices. A large Eastern steel concern is offering basic freely in this market at \$40 at furnace, the freight rate to the Pittsburgh district being \$3.60 per ton, or \$43.60 delivered. It is believed the company, on a firm offer, would probably shade its price at least \$1 per ton. On the other hand, some merchant furnaces are adhering strictly to \$43 at furnace, and reports are that several sales have been made in the past week or ten days at that price. On foundry iron most sellers are adhering firmly to \$42 at furnace for plain No. 2. Here and there one or two sellers will shade that price, but not over \$1 a ton. Inquiry for Bessemer and other grades of iron is quiet. Consumers apparently are not anxious to contract for iron for last half delivery, but prices quoted for second quarter would be shaded for last half delivery.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh districts being \$1.40 per gross ton:

Basic	\$41.50 to \$43.00
Bessemer	42.00
Gray forge	41.00 to 42.00
No. 2 foundry	41.00 to 42.00
No. 3 foundry	39.50
Malleable, Valley	42.00 to 43.00

Ferroalloys.—Up until Wednesday or Thursday of last week, local dealers in domestic ferromanganese were willing and anxious to book business in 76 to 80 per cent at \$160, delivered. In fact, there was a sale made early last week for last half delivery at that price. However, domestic makers of ferromanganese have evidently decided they have all the business on their books they care for just now, and they are now quoting \$175 to \$180 for last half delivery. One or two

sales are reported to have been made at those prices, but it is intimated that some second quarter material was involved, the entire business being taken at a flat price. Consumers are evidently pretty well covered on ferromanganese for last half, and inquiry is light. Another thing that has influenced the higher prices being quoted for domestic is a heavy advance in freight rates on the other side, and also the fact that allocations on English ferromanganese, made by the English Government, have been cut down, and the quantity of material allowed the English producers to ship to this country is restricted and delay in delivery is very great. One local interest that sold last year English ferromanganese for January and February delivery has not yet received a ton, and is filling in on its contract with domestic. Inquiry for other grades of ferroalloys is not very active.

We quote 76 to 80 per cent domestic ferromanganese \$170 to \$180 for second half delivered, with a reduction of \$1.50 to \$1.75 per unit for lower percentages. We quote 50 per cent ferrosilicon at \$85 to \$90, and 18 to 22 per cent spiegel-eisen at \$55 to \$57.50, delivered. Prices on Bessemer ferrosilicon are: 9 per cent, \$56.50; 10 per cent, \$59.50; 11 per cent, \$62.50; 12 per cent, \$66.10. We quote 6 per cent silvery iron, \$45.75 to \$46.25; 7 per cent, \$50 to \$50.50; 8 per cent, \$52 to \$52.50; 9 per cent, \$54 to \$54.50, and 10 per cent, \$56.50 to \$57. An advance of \$3.30 per gross ton is charged for each 1 per cent silicon for 11 per cent and over on Bessemer ferrosilicon, and an advance of \$2.50 per gross ton is charged for each 1 per cent silicon for 11 per cent and over on silvery iron. All the above prices are f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, which has a uniform freight rate of \$2.90 per gross ton for delivery in the Pittsburgh district.

Billet and Sheet Bars.—Sales of sheet bars for conversion into sheets are still being made at very high prices, reports being that one leading Detroit automobile builder bought lately from a local steel interest upward of 3000 tons of sheet bars for second quarter at either \$93 or \$94 at mill. Figures giving the output of steel ingots for February, issued last week by the American Iron and Steel Institute, were a surprise to the trade here, the output having been much larger than generally supposed, owing to crippled condition of some of the steel mills, largely due to lack of coal. The output of steel in the Pittsburgh district is increasing, and the present acute shortage in supply of billet and sheet bars, which has existed for three months or more, may be relieved to some extent before long. In the prices named below, the lower figures are those of the Carnegie Steel Co. being the March 21 schedule of last year, and the higher price represents purchases of billets and sheet bars by consumers who were willing to pay the figures quoted to get steel. In some cases higher prices than those named below have been paid.

We quote 4 x 4 in. soft Bessemer and open-hearth billets at \$38 to \$70; 2 x 2-in. billets at \$42 to \$75; slabs, \$41 to \$75; sheet bars, \$42 to \$80, and forging billets, ordinary carbon, \$80 base, all f.o.b. mill Pittsburgh or Youngstown.

Structural Material.—Inquiry is still very active, but local fabricators are getting filled up so far ahead that they are not going after new business very aggressively, and in most cases are quoting higher prices. The McClintic-Marshall Co. has taken about 5500 tons of Chicago work, also a large office building in New York 5300 tons, and ore bins for the Robeson Iron Co., Robeson, Pa., 1000 tons. The Jones & Laughlin Steel Co. has taken 1100 tons for mill buildings for the Pittsburgh Steel Products Co., Allenport, Pa., and the American Bridge Co. has taken about 5000 tons of plates and shapes for steel barges for LaBelle Iron Works, to be used by that concern in hauling coal from its mines in Harmarville, Pa., to its by-product coke plant across the Ohio River from Steubenville. The American Bridge Co. is also building at its Ambridge, Pa., shops, 25 steel barges to be used in Mississippi trade. The Carnegie Steel Co. continues to quote plain material up to 15-in. at 2.45c., this being the March 21 price of last year, but the general market on plain material is 3.50c. to 4c. at mill. Considerable business has been placed with a local interest, and also one or two eastern mills at the higher figure.

Plates.—Definite details as regards inquiries for cars are very slow in coming out. It is said new business in sight amounts to over 100,000 cars, and that actual inquiries on which the steel car companies are now figuring amount to nearly 50,000 cars. One trouble the

steel car companies will have is to get sheets for steel cars, which are used largely in roofs and sides. Plate mills are filled up for periods ranging from three months to the end of the year, and three of four of the larger concerns are refusing to quote, except in a limited way, to regular customers, but for indefinite delivery. Frequent sales of plates for fairly prompt shipment have been made at 4.50c. to 5c. at mill.

We quote sheared plates of tank quality, ¼ in. and heavier, at 2.65c. to 2.90c. for very indefinite delivery, while prices on ¼-in. and heavier plates, named by mills that will agree to ship out in three or four to six months, range from 4c. to 5c. at mill.

Sheets.—This product is probably the scarcest in point of supply of any forms of finished steel, not excepting tubular goods. Most large mills rolling sheets are covered so far ahead they are not quoting, and deliveries are bad. Many thousands of tons are piled up in mill warehouses awaiting cars, and all the mills will carry over into second half large tonnages of sheets that should have been shipped out in first half. Prices continue to show a wide range, and depend entirely on whether the buyer is a regular customer, the tonnage he wants and the delivery. Sales of galvanized sheets are reported at as high as 9c. per lb. at mill, while sheets for automobile bodies have also sold at that price or higher. Output of sheets, especially in the Youngstown district, is greatly restricted by the shortage in coal.

We quote No. 28 gage box annealed, one-pass black sheets at 4.35c. to 6.50c.; No. 28 galvanized, 5.70c. to 8.50c., and Nos. 9 and 10 blue annealed at 3.55c. to 6c., the lower prices named being the March 21 schedule, which are still named by the leading interest while the higher prices represent a fair range of quotations by the independent mills.

Tin Plate.—As yet there is not much disposition being shown by tin plate makers to take on business for last half delivery. Two or three companies have taken limited quantities from regular customers at open prices, where it seemed desirable to do so, to allow the customer to figure on his material for last half delivery. No official intimation has been given by the leading interest as to its price policy for last half, and it will probably not make any announcement as to second half price on tin plate before early in May. Export inquiry is active, coming largely from the Orient and from South America. Prices quoted for export shipment are from \$10 to \$10.50 per base box.

We now quote tin plate for domestic consumers and indefinite delivery at \$7 per base box, wasters \$8 to \$8.50, and for export \$9.50 to \$10.50 per base box, all f.o.b. mill, Pittsburgh.

Wire Rods.—The inquiry is active, and wire concerns that buy rods are having trouble to find mills that will quote on their inquiries. There would be no trouble whatever in getting \$70 at mill, or higher, for fairly prompt shipment of soft rods. We quote soft Bessemer and open-hearth rods at \$70, high carbon rods at \$75 to \$100 at mill, the latter according to carbon content.

Wire Products.—None of the local makers is quoting on wire or wire nails except in a very limited way to regular customers and for indefinite shipment. The action of the American Steel & Wire Co. in selling wire products at prices to be in effect at time of shipment, is taken by the trade here to indicate an advance in prices by this company in the near future. It is claimed that none of the mills can sell wire nails at \$3.25 base and come out whole. Consumers are still making tenders of business to the independent mills at considerably higher than regular prices, but in most cases these are turned down.

We quote wire nails at \$3.25 base, this being the price of the American Steel & Wire Co. and \$4 base on the new card recently issued by four or five of the independent mills. We quote bright basic wire at \$3, this being the price of the American Steel & Wire Co., and \$3.50, this being the price of most of the independent mills.

Hot-Rolled Strip Steel.—Most makers are sold up over second quarter, and have not yet opened their books for third quarter business. For prompt delivery, hot-rolled strips command high premiums in prices. We quote hot-rolled strips at 5c. to 7c. at mill to regular customers, while for fairly prompt delivery some sellers quote 8c. to 10c. at mill.

Cold-Rolled Strip Steel.—Mills are filled up for three or four months, and are not yet selling for second half delivery, owing to the uncertainty of future costs.

Prices quoted, when the mills do quote, depend entirely on whether the buyer is a regular customer, the quantity and the delivery wanted. From 7c. to 10c. per lb. at mill represent average prices quoted.

Cold-Rolled Steel Bars.—Very little new business is being placed with local makers, as they have all the obligations on their books they care to have, and are trying to take care of regular customers as best they can. Deliveries are slow and output is greatly restricted by the scarcity of coal. Prices on cold-rolled steel bars, on new orders, range from 5c. to 7c. at mill.

Iron and Steel Bars.—Intending buyers, both from the East and the West, have combed this market lately trying to find mills that will take their orders for steel bars for fairly prompt delivery, but with little success. Local makers are filled up for the remainder of this year and for fairly prompt delivery steel bars rolled from billets command from 4c. to 4.50c. at mill. A local maker of iron bars reports being filled up until July, and is not yet quoting for second half delivery.

We quote steel bars rolled from billets at 2.35c., this being the price of the Carnegie Steel Co. for very indefinite delivery, likely not before first quarter of next year. Other mills rolling steel bars from billets quote from 3c. to 4c. at mill, prices depending entirely on the buyer and the delivery wanted. The demand for concrete reinforcing steel bars is fairly active and we quote these, when rolled from billets, at 4c. to 4.25c., and from old steel rails at about 3.50c. at mill. We quote common iron bars at 4.25c. to 4.50c., and refined iron bars 4.50c. to 5c. in carloads, f.o.b. mill, Pittsburgh.

Iron and Steel Pipe.—Conditions in the iron and steel tubular market are the same as has been noted in these reports for some months past. There is an insistent demand for oil well tubular goods, very much beyond the capacity of the mills to supply, and almost every day mills are turning down inquiries for oil and gas lines on which they are unable to quote, or make the delivery wanted. Practically all of the leading mills making iron or steel pipe and oil well tubular goods are sold up on all the product they can make over the remainder of this year, and are refusing to quote. Jobbers that can make fairly prompt delivery of iron and steel pipe, or oil well supplies, can get practically any prices asked. Some foreign business has been taken recently by several local mills for delivery well over this year and nearly all of next year. This business was cultivated during the war, and the mills feel they are obligated to still take care of at least part of it as best they can. The pressure for product on the mills rolling tubular products is not likely to be relieved for the next several years. Discounts being named by the mills to regular customers on iron and steel pipe, but for very indefinite delivery, are given on page 850.

Boiler Tubes.—Mills report the demand for boiler tubes and for seamless tubes as very heavy, and state their product is well sold up over the remainder of this year. Lately some large orders have been placed for boiler tubes with local makers by leading builders of locomotives, some of these being for export shipment. The new demand for merchant tubes is reported fairly active. Discounts on iron and steel tubes, reported as being firmly held, are given on page 850.

Coke.—The car supply is not any better, and, if anything, was worse last week than at any time this winter. Five or six blast furnaces in the Wheeling, Pittsburgh and Youngstown districts were compelled to bank last week for lack of coke. Several large coke plants in the Connellsville region report that for several days last week they did not receive any cars, and on other days received only about 25 per cent of usual supply. There is an insistent demand for prompt furnace coke, but practically none to be had, as producers are shipping their entire output on contracts. Output of coke in the upper and lower Connellsville regions last week was 238,286 tons, a decrease from the previous week of about 10,000 tons, largely due to shutdown of plants for lack of cars. Government prices in effect until April 30, are \$6 for spot or future furnace, and \$7 for spot or future foundry coke, net tons at oven.

Iron and Steel Scrap.—The local market on scrap has been very dull in demand for three or four weeks, but was livened up to some extent last week by heavy

purchase of machine shop turnings by a local steel interest for blast furnace use. The quantity purchased is given as ranging from 10,000 to 15,000 tons, these being short selected turnings, which commanded a price said to be \$20 delivered, or about \$1.50 per ton above the general market on ordinary turnings. These heavy purchases have pretty well cleaned up the available supply of turnings for the time being and general prices are up about \$1 per ton. The Pennsylvania Railroad scrap was awarded on Tuesday, March 9, part of it going to dealers, but the greater part is said to have gone to consumers direct. We note sales of 2000 to 3000 tons of selected heavy steel melting scrap for prompt shipment, at about \$28, delivered. Prices on scrap are only fairly strong, consumers being well filled up for some time ahead, and are ruling about as follows:

Heavy melting steel, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh, delivered	\$27.50 to \$28.00
No. 1 cast for steel plants	34.00 to 35.00
Re-rolling rails, Newark and Cambridge, Ohio; Cumberland, Md.; Franklin, Pa.; and Pittsburgh	34.00 to 35.00
Compressed steel	23.00 to 23.50
Bundled sheet sides and ends, f.o.b. consumers' mills, Pittsburgh district	18.00 to 18.50
Bundled steel stamping	17.00 to 17.50
No. 1 busheling	23.00 to 23.50
Railroad grate bars	28.00 to 29.00
Low phosphorus melting stock (bloom and billet ends, heavy plates) ¼ in. and heavier	31.00 to 32.00
Railroad malleable	31.00 to 32.00
Iron car axles	33.00 to 34.00
Locomotive axles, steel	33.00 to 34.00
Steel car axles	31.00 to 32.00
Cast iron wheels	41.00 to 42.00
Roller steel wheels	29.00 to 30.00
Machine-shop turnings	18.50 to 19.00
Sheet bar crop ends (at origin)	30.00 to 30.50
Heavy steel axle turnings	20.00 to 21.00
Heavy breakable cast	33.00 to 34.00
Cast iron borings	19.50 to 20.00
No. 1 railroad wrought	33.00 to 34.00

Expected Stock Distributions

It is certain a number of sizable common stock dividends will be declared by iron and steel companies in the Youngstown, Ohio, district, which have accumulated substantial surplus and reserve funds in the past five years. The decision of the United States Supreme Court, exempting such distributions from taxation, paves the way for a general industrial rehabilitation, is the belief of leading financiers and industrial executives in the Mahoning Valley. "The decision will make possible the capitalization of surplus and permit a readjustment of capital," states a director of the Youngstown Sheet & Tube Co. "It will result in stabilizing business generally."

Industrial stocks in this territory advanced from 5 to 25 points upon receipt of the decision, Youngstown Sheet & Tube common gaining from \$340 to \$360.

Expected stock distributions in the district are by the Youngstown Sheet & Tube Co., 400 per cent; Brier Hill Steel Co., 200 per cent; Trumbull Steel Co., 100 per cent; United Engineering & Foundry Co., 100 per cent; Republic Iron & Steel Co., 200 per cent, and Truscon Steel Co., 200 to 300 per cent.

In February, 1917, following the annual meeting, directors of the Sheet & Tube Co. authorized a 100 per cent common stock distribution, but later rescinded this action when Government revenue collectors construed such dividends as taxable.

The Barker Steel Co., Boston, with a capitalization of \$20,000, divided into 100 shares of preferred stock, par \$100, and 100 shares of common, par \$100, has been incorporated under Massachusetts laws. The company will specialize in concrete reinforcing steel and engineering. It will prepare plans for framing and supply reinforcing steel, fabricating the latter to requirements. Harold L. Barker, 7 Water Street, Boston, is president of the corporation. Harold L. Stevens, Boston representative of the Lackawanna Steel Co., Central Street, is treasurer. These two gentlemen and Hugh J. Shaw, Winthrop, Mass., constitute the board of directors. Two or three locations are under consideration, with a strong possibility of the company's warehouse and plant being located in Cambridge.

Chicago

CHICAGO, March 16.

Steel mill operation in this district is better than it has been for some time. The foremost independent is now working at 90 per cent of ingot capacity, the leading interest continues on an 85 per cent basis and the other local plants are averaging close to 100 per cent. Now that production is again approaching normal, rumors of a possible recurrence of labor trouble come from Gary and steel centers further east. Labor agitators are reorganizing the mill workers and, it is said, have set May 1 as the date for a second strike. Although there is no reason to doubt that the organizers are as enthusiastic as last fall, few believe that the workers will care to sacrifice two or three months' wages with the experiences of 1919 fresh in their minds.

Good sized orders for rolling stock continue to be placed by the railroads. The Chicago, Milwaukee & St. Paul has bought 100 Mikado type locomotives from the Baldwin Locomotive works. Two confidential orders for 3000 and 1000 box cars respectively have been taken by a large car builder. The plates, shapes and axles for these cars, amounting to about 28,000 tons, will be furnished by the leading interest. What is believed to be the first rail order for 1921 delivery has been placed with the Colorado mill by the Missouri Pacific. The contract covers 9000 tons.

The market continues active in practically all finished products, although signs of slackened activity have appeared in connection with cast-iron pipe and structural material. The pig iron market seems to be experiencing a genuine lull, but scrap is slightly firmer as the result of two large purchases by consumers, one covering about 4000 tons of heavy melting steel and the other 2000 tons of malleable. The latter was bought for about \$27.50 per net ton.

Pig Iron.—Inquiries and orders are few, but some of the tonnages before the trade are of good size. A Michigan melter wants 3800 tons of foundry for last half shipment and another consumer in this district is inquiring for 2000 tons for the same delivery. The Baltimore & Ohio is in the market for 1000 tons of charcoal iron for second half shipment. Perhaps the two largest recent orders call for 600 tons of foundry each, one being for delivery at an Ohio plant during the last half and the other for shipment to a melter in this territory before July 1. The former was closed on the basis of \$40, Birmingham, and the latter at \$42, Birmingham. It seems probable that foundries in the Chicago market will have to look to outside furnaces for most of their remaining 1920 requirements, as the leading Northern producer now has little or nothing to sell for delivery this year.

The following quotations are for iron delivered at consumers' yards except those for Northern foundry, malleable and steel-making irons, including low phosphorus, which are f.o.b. furnace and do not include a switching charge averaging 50c. per ton.

Lake Superior charcoal, average sil.	
1.50 (other grades subject to usual differentials), deliv. at Chicago....	\$57.50 to \$60.50
Northern coke, No. 1, sil. 2.25 to 2.75	45.25
Northern coke foundry, No. 2, sil.	
1.75 to 2.25.....	43.00
Northern high phos. foundry.....	43.00
Southern coke No. 1 foundry and No. 1 soft, sil. 2.75 to 3.25.....	48.20 to 50.20
Southern coke, No. 2 foundry, sil.	
2.25 to 2.75.....	46.70 to 48.70
Southern foundry, sil. 1.75 to 2.25..	45.00 to 47.00
Malleable, not over 2.25 sil.....	43.50
Basic	42.00
Low phos. (copper free).....	51.00
Silvery, 7 per cent.....	56.40 to 56.80

Ferroalloys.—There is little ferromanganese to be had, but what is available is commanding all the way from \$200 to \$250 delivered. Some makers have raised their last half quotations to \$180 delivered. Spiegeleisen and ferrosilicon are quiet.

We quote 76 to 80 per cent ferromanganese, last half, \$160 to \$180; 50 per cent ferrosilicon at \$85 delivered; spiegeleisen, 18 to 22 per cent, \$60 furnace.

Railroad Rolling Stock.—Although railroad buying is developing rather slowly, a number of good-sized purchases are being negotiated secretly. During the past week a large car builder booked confidential orders for 3000 and 1000 box cars respectively and a

week ago another important car manufacturer was awarded two confidential contracts totalling 1500 cars, as was noted in this column on March 9. It develops that the Chicago, Burlington & Quincy has not yet asked for figures on freight equipment, but is expected to issue inquiries soon for 1000 box and 1000 gondola cars. The Chicago, Rock Island & Pacific is receiving figures this week on 3250 cars, for which it recently sent out inquiries. The Chicago, Milwaukee & St. Paul has bought 100 Mikado type locomotives from the Baldwin Locomotive Works. The Missouri Pacific has ordered 25 coaches and 10 baggage cars from the American Car & Foundry Co. and the Erie has let a contract to the Standard Steel Car Co. for 40 passenger service cars, 42 suburban coaches and six suburban combination cars. The Grand Trunk has ordered 25 switch engines from the Lima Locomotive Works.

Plates.—The leading interest will supply 23,000 tons of plates and shapes and 5000 tons of axles for the construction of 4000 box cars for two unnamed railroads. This producer is unable to take care of the car builders' bar needs; in fact, it is doubtful whether additional orders for bars can be taken for 1920 delivery. In plates and shapes, the situation is a little easier and while the books have not been formally opened, second quarter specifications are being accepted from regular customers with pressing needs. No definite delivery is being promised on these new commitments, however, the probability being that rolling will take place in the third or fourth quarters. Notwithstanding rumors to the contrary, the leading interest is taking this second half business at the prices of March 21, 1919. While the foremost local independent has nothing to offer for general sale, it recently accepted orders from three Western railroads for a total of 1500 tons of plates, shapes, bars and sheets to be used in locomotive repairs. For this material the buyers agreed to pay the prices quoted at time of delivery. A prominent Eastern mill continues to book small tonnages of plates for second and third quarter delivery. One of the largest of these orders calls for 400 tons for 60 days delivery and brought 4c. Pittsburgh.

Mill quotation is 2.65c. to 4c. Pittsburgh, the freight to Chicago being 27c. per 100 lb. Jobbers quote 4.17c. for plates out of stock.

Structural Material.—Neither the leading interest nor the foremost local independent has formally opened its books for last half, although the former is now accepting specifications from old customers on their pressing needs. There continues to be considerable activity in building construction, but here and there are evidences of the restraining influence of the tight money situation on the execution of projected work. Inquiries for steel to be used in industrial plants have declined. The construction of a Minneapolis office building, involving 1600 tons of fabricated material, recently awarded, has been suspended for a year. Locally the labor situation again threatens to impede the operations of fabricators. Recent awards include:

St. Paul Union Station Co., waiting concourse, etc., 882 tons, to St. Paul Foundry Co.
United States Portland Cement Co., buildings at Concrete, Colo., 215 tons, to Minneapolis Steel & Machinery Co.
Arizona Highway Department, San Carlos Bridge, Arizona, 105 tons, to Midland Bridge Co., Kansas City.

Current inquiries include:

Scottish Rite Temple, Sioux City, Iowa, 1500 tons.
Pontchartrain Hotel, New Orleans, 2115 tons.
Grauman Office and Theater Building, Los Angeles, 1200 tons.
Morgan & Wright Co., boiler house, Detroit, 350 tons, bids asked by Stone & Webster.
Haskell & Barker Car Co., plant addition, Michigan City, Ind., 300 tons.
Coonley Mfg. Co., plant at Cicero, Chicago, 125 tons.
The mill quotation is 2.45c. to 4.00c., Pittsburgh, which takes a freight rate of 27c. per 100 lb. for Chicago delivery. Jobbers quote 3.97c. for materials out of warehouse.

Bars.—Present indications make it extremely doubtful whether the leading interest can take further business in mild steel bars for 1920 delivery. For the time being, at any rate, it is accepting no additional orders, not even from car builders. The situation with the foremost independent will become apparent after its books are opened for second half business next month.

Bar iron is active and strong, with a likelihood of a general advance to 3½c. A local bolt and nut manufacturer has purchased 3000 tons and the railroads are buying more freely. A recent order for 800 tons of bar iron brought 4c., Chicago. Inquiry for rail carbon steel bars is heavy and can be satisfied only in a limited way by mills in this territory.

Mill prices are: Mild steel bars, 2.35c. to 4.25c., Pittsburgh, taking a freight of 27c. per 100 lb.; common bar iron, 3.50c. to 3.75c., Chicago; rail carbon, 3.50c. to 3.75c., mill. Jobbers quote 3.87c. for steel bars out of warehouse.

Sheets.—Mills in this district are not a factor in the sheet market. The leading interest's new commitments are confined to small allotments to regular customers, while the foremost independent has taken no additional business for some time, except a small tonnage recently booked for locomotive repairs. These railroad orders were closed on the basis of prices ruling at time of shipment. Independent jobbers have again advanced blue annealed and black, this time to 6.02c. and 7c. respectively.

Mill quotations are: 4.35c. to 6.50c. for No. 28 black; 3.55c. to 5c. for No. 10 blue annealed, and 5.75c. to 8.50c. for No. 28 galvanized, these all being Pittsburgh prices, subject to a freight of 27c. per 100 lb. to Chicago. The lowest prices are those of March 21.

Jobbers quote, Chicago delivery out of stock: No. 10 blue annealed, 6.02c.; No. 28 black, 7c.; No. 28 galvanized, 8.50c.

Wire Products.—A slightly improved car situation has made better shipments possible. The leading interest continues to take new business sparingly. Numerous inquiries for nails have been received from the railroads and are being given careful consideration, particularly when desired for car repairs. For prices, see Finished Iron and Steel, f.o.b. Pittsburgh, page 850.

Rails and Track Supplies.—What is believed to be the first rail order for 1921 delivery was recently placed with the Colorado Mill by the Missouri Pacific. The contract calls for 9000 tons, which the railroad originally wanted for this year, but failing to secure the desired shipment, placed for rolling early in 1921. Inquiry for track fastenings is heavy, but is not being satisfied by the leading interest except in cases of emergency.

Standard railroad spikes, 3.35c. to 3.60c. Pittsburgh. Track bolts with square nuts, 4.90c. to 5c., Pittsburgh. Steel tie plates and steel angle bars, 2.75c., Pittsburgh and Chicago; tie plates, iron, 3.75c., f.o.b. makers' mills. Light rails, 2.45c. f.o.b. makers' mills, with usual extras.

Cast Iron Pipe.—Pipe, particularly in sizes up to 12 in., is strong and in many instances is commanding \$2 or more above the prices which have prevailed until recently. Inquiry seems to be on the decline, although this may be merely a temporary condition. Akron, Ohio, has awarded 3155 tons to the United States Cast Iron Pipe & Foundry Co. Saginaw, Mich., has let 1500 tons to the National Cast Iron Pipe Co. On April 10, Bluffton, Ind., will take bids on 350 tons through contractors.

We quote per net ton, f.o.b. Chicago, ex-war tax, as follows: Water pipe, 4-in., \$75.80 to \$77.80; 6-in. and above, \$72.80 to \$74.80; class A and gas pipe, \$2 extra.

Bolts and Nuts.—Deliveries of raw material are still far from satisfactory, with the result that bolt manufacturers are unable to gain on their commitments. Another general advance would not be surprising, particularly because some Eastern plants have been cut off from their sources of supply by railroad embargoes. For mill prices, see Finished Iron and Steel, f.o.b. Pittsburgh, page 850.

Jobbers quote: Structural rivets, 5.37c.; boiler rivets, 5.47c.; machine bolts up to ¾ x 4 in., 35 and 5 per cent off; larger sizes, 25 and 5 off; carriage bolts up to ¾ x 6 in., 30 off; larger sizes, 20 off; hot pressed nuts, square tapped and hexagon tapped, \$1 off; coach or lag screws, gimlet points, square heads, 40 and 5 per cent off. Quantity extras are unchanged.

Old Material.—The purchase of about 4000 tons of heavy melting steel by a local consumer, together with a slight increase in activity among other users, has given the market a more cheerful tone. This is true particularly of open-hearth and rolling mill grades. The bulk of trading, however, is confined to the dealers. A shortage of labor and cars continues to restrict the volume of scrap which can be handled. The Grand

Trunk Western Lines offer 500 tons, the Soo Line 200 tons, and the Michigan Central a blind list.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$32.00 to \$33.00
Relaying rails	40.00 to 50.00
Car wheels	35.00 to 36.00
Steel rails, rerolling	32.00 to 33.00
Steel rails, less than 3 ft.	28.50 to 29.00
Heavy melting steel	24.00 to 24.50
Frogs, switches and guards, cut apart	24.00 to 24.50
Shoveling steel	23.50 to 24.00
Low phos. heavy melting steel	28.00 to 28.50
Drop forge flashings	19.00 to 20.00
Per Net Ton	
Iron angles and splice bars	\$30.50 to \$31.50
Steel angle bars	24.50 to 25.00
Iron arch bars and transoms	31.00 to 32.00
Iron car axles	39.00 to 40.00
Steel car axles	31.50 to 32.50
No. 1 busheling	21.00 to 21.50
No. 2 busheling	14.75 to 15.25
Cut forge	24.00 to 24.50
Pipes and flues	18.00 to 18.50
No. 1 railroad wrought	26.75 to 27.25
No. 2 railroad wrought	24.00 to 24.50
Steel knuckles and couplers	24.00 to 24.50
Coil springs	26.50 to 27.00
No. 1 cast	37.50 to 38.00
Boiler punchings	24.00 to 24.50
Locomotive tires, smooth	25.00 to 25.50
Machine shop turnings	13.00 to 13.50
Cast borings	13.25 to 14.25
Stove plate	30.50 to 31.00
Grate bars	30.50 to 31.00
Brake shoes	26.00 to 26.50
Railroad malleable	27.25 to 28.25
Agricultural malleable	26.50 to 27.50
Country mixed	17.00 to 18.00

Cleveland

CLEVELAND, March 16.

Iron Ore.—A few small lot sales are reported and a few new inquiries for small lots including two from Virginia furnaces developed during the week. As practically all the larger consumers are covered for the bulk of their requirements, little activity is expected in the market for some time. No action has yet been taken on vessel rates for ore, but it is expected that the carrying charges will be fixed within a few days.

We quote, delivered, lower Lake ports: Old range Bessemer, \$7.45; old range non-Bessemer, \$6.70; Mesaba Bessemer, \$7.20; Mesaba non-Bessemer, \$6.55.

Coke.—Shipments show little, if any, improvement, but foundries are not suffering as much as they were a few weeks ago for lack of fuel. Some foundries are trying to accumulate stocks, but for the present can secure only enough coke for immediate requirements. Better shipments are expected shortly with improved weather conditions.

Pig Iron.—There is still a fair volume of sales, although the market is quiet as compared with a few weeks ago. Considerable foundry iron is being booked by a Cleveland producer for the last half delivery in the northern Ohio territory. Sales include two 2000 ton lots, one to a Cleveland melter and the other to another northern Ohio foundry. The market is firmly established at \$43, Cleveland furnace, and \$42 Valley for No. 2 foundry for the last half. Prompt shipment sales are reported at \$43.50. One interest reports sales during the week aggregating 4000 tons. The basic iron market which recently showed a weakening tendency, apparently is now firm at \$43, furnace. A Cleveland furnace has just sold 5000 tons at that price to a Pittsburgh district consumer for the second quarter delivery and 1000 tons to a central Ohio consumer for the last half. Basic inquiries include one from the southern Ohio territory for 15,000 tons and one from a western consumer for 10,000 tons, the latter being for the second and third quarters. We note the sale of 1000 tons of malleable iron by a Valley furnace at \$42. Low phosphorus iron is again fairly active. Several small lot sales, mostly for the second and third quarter to consumers in this territory, are reported at \$48 to \$50 for copper free iron. Other sales made by a Valley furnace include a 2000 ton lot for eastern Pennsylvania delivery. We note the sale of a few small lots of Southern foundry iron on the basis of \$42 for 1.75 to 2.25 silicon. Quotations on this grade range from \$41 to \$43. Very little Ohio silvery iron is available and the sale of two lots is reported at \$58 for 8 per cent

silicon iron or \$3 a ton above the regular market price. However, silvery iron is still to be had at regular prices. Jisco furnace of the Jackson Iron & Steel Co., which has been shut down for repairs for several weeks, was blown in March 13.

We quote delivered Cleveland as follows:

Basic	\$43.40
Northern No. 2 foundry, sil. 1.75 to 2.25	43.40
Southern foundry, sil. 2.25 to 2.75	\$47.25 to 49.70
Gray forge	41.40
Ohio silvery, sil. 8 per cent	58.40
Standard low phos., Valley furnace	48.00 to 50.00

Finished Material.—Demand for finished steel is fairly heavy, but inquiries are not as numerous as they have been and the pressure to get material is not so great as a few weeks ago. However, many consumers are still urging mills to accept orders for whatever deliveries they will be able to make. In semi-finished steel a leading Detroit automobile manufacturer has offered a Cleveland mill \$100 for open-hearth sheet bars for conversion. This mill, which was unable to accept additional tonnage, has recently adjusted its sheet bar price at \$70 for March delivery by mutual agreement with one consumer, but considers that \$75 represents a fair market price at present. There is a heavy demand for reinforcing bars and contractors are placing orders for round lots with warehouses, being willing to pay the increased prices to secure early deliveries. With increased demand, hard steel bars are scarcer than they have been and one mill is quoting these at 4.50c., although the usual price is still 4c. One western Pennsylvania mill has advanced its price to 6c. for cold-rolled shafting and to 4.50c. for nails. A fair volume of new structural work is coming out, but some projects involving round tonnages have been held up because of high cost of construction. The Van Dorn Iron Works Co. has taken 450 tons for the Gordon Square arcade, Cleveland, the United Alloy Steel Corporation, Canton, has taken bids for 1500 tons for an addition and new inquiries include one for 450 tons for the new Keith theater. Plates are still generally quoted at 4c. for early shipment. One mill that has been booking orders for early delivery is now practically out of the market. Blue annealed sheets are quoted at 6c. in this market for fairly early delivery. Warehouse orders are very heavy and a great deal of local business is going to a Chicago warehouse, as local jobbers are unable to supply all sizes. One warehouse is now quoting steel bars at 5c. to 6c., depending upon the size.

Old Material.—The scrap market continues very dull, but prices are firm and the feeling in the trade is generally good. There has been very little buying by the mills during the past few weeks, and dealers are looking for more activity in the market about April 1, when they expect some of the consumers will place orders. Heavy melting steel is being offered to local consumers at \$26. We note the sale of 1000 tons of steel car axles for export, these bringing around \$40, delivered in New York. Small lots of short turnings for blast furnaces have sold at \$21 for Pittsburgh delivery. Dealers are now able to make some shipments of scrap to the plant of the McKinney Steel Co., which was embargoed for some time.

We quote delivered consumers' yards in Cleveland and vicinity, as follows:

Heavy melting steel	\$25.75 to \$26.00
Steel rails, under 3 ft.	29.00 to 30.00
Steel rails, rerolling	33.00 to 33.50
Iron rails	32.00 to 33.00
Iron car axles	41.00 to 42.00
Steel car axles	36.00 to 37.00
Low phos. melting scrap	30.00 to 31.00
Cast borings	18.25 to 18.50
Iron and steel turnings and drillings	15.25 to 15.75
Short turnings for blast furnaces	18.00 to 18.50
Compressed steel	22.50 to 23.00
Railroad wrought	29.00 to 30.00
Railroad malleable	32.00 to 32.50
Agricultural malleable	27.00 to 28.00
Steel axle turnings	22.50 to 23.00
Light bundled sheet scrap	18.00 to 18.50
No. 1 cast	39.00 to 40.00
No. 1 busheling	22.00 to 22.50
Drop forge flashings, over 10 in.	17.85 to 18.25
Railroad grate bars	30.00 to 31.00
Stove plate	30.00 to 31.00

Bolts, Nuts and Rivets.—The demand for bolts and nuts continues heavy and makers are getting farther behind on deliveries. Prices are firm. Rivet manu-

facturers are receiving good specifications on contracts, but there is not much new business, as most consumers are under contract.

Cleveland Steel Co.'s New Plant

The Cleveland Steel Co., Cleveland, contemplates the erection of a modern plant to replace its present sheet and plate mill plant, and has acquired a new 55-acre site at West 117th Street and the Big Four Railroad. No decision has been reached as to when construction will start.

Cincinnati

CINCINNATI, March 16.

Pig Iron.—The market remains pretty much the same as last week. Sales made range from carload lots to 1000 tons, most of the orders being placed for first half delivery. As yet buying for second half in this territory has not been going higher. Prices on the whole are unchanged from those ruling a week ago, the exception being Southern Ohio foundry, which is now quoted \$1 higher for the base grade. One large interest there, which disposed of 40,000 tons during the past two weeks, for last half shipment, is now reported to be out of the market. Other interests are quoting \$43 to \$45, with very little iron to offer for first half. Southern iron is selling at from \$40 to \$42, the lower price being for first half. An interest which recently entered the market is understood to have disposed of 10,000 tons and then withdrawn. This iron was for second half shipment and went at \$40. One interest disposed of about 7000 tons during the week, the largest sale being one of 1000 tons, though two others of 500 tons each were made. An inquiry is before the market for about 15,000 tons of basic from a Southern Ohio steel plant, and it is expected that 25,000 tons will be purchased if the iron is available. A sale of a small tonnage of Southern basic is reported in this territory, taken by a melter who is stated to have had some difficulty in securing shipments on his contracts. A local agency reports having received an inquiry for about 15,000 tons of foundry iron for shipment to the Far East, and one for 2500 tons of foundry and malleable from the Pacific Coast. Virginia iron is still being quoted at \$42 furnace. Malleable iron is quiet. Most of this grade produced in this district is disposed of in other territories. An inquiry for 1000 to 2000 tons of ferromanganese is reported for prompt shipment.

Based on freight rates of \$3.60 from Birmingham and \$1.80 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base price)	\$43.60 to \$45.60
Southern coke, sil. 2.25 to 2.75 (No. 2 soft)	44.85 to 46.85
Ohio silvery, 8 per cent sil.	56.80
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2)	44.80 to 46.80
Basic Northern	41.80
Malleable	43.80 to 45.80

Coke.—The coke situation remains unchanged, and foundries are running on the ragged edge, though none have been forced to close. Removal of the fuel restrictions is being anxiously awaited by both dealers and consumers, who feel that no improvement can be expected until this is done.

Finished Material.—Local warehouses report the demand constantly increasing for steel products of all kinds. So anxious are consumers for material that they are endeavoring to have their third quarter needs booked, figuring that if they get their orders placed they will stand a chance of getting their material some time this year. It is understood that mills are not inclined to take on business that far ahead. Prices are somewhat higher than they were a month ago. Deliveries are showing some improvement, but the demand is so keen that warehouses are unable to keep their stocks up to what they would like. Black and galvanized sheets are particularly in demand, and prices have gone sky high. A local sheet metal worker reports that he was offered a quantity of galvanized sheets at 12c. per lb. Prices range all the way from 7c. to 11c., with the majority of the sales being made at 8.50c.

for black and 9.75c. for galvanized. In one instance a car load of galvanized sheets was sold by a broker for 11c. per lb. It is reported that a Cleveland mill, which is prevented by embargoes from shipping to other points, has offered plates on one week's delivery to local consumers.

Tool Steel.—The demand for tool steel has fallen off somewhat, and metal manufacturing plants are purchasing only to fill their immediate needs. The recent cut in price by one of the leading makers of high-speed steel has been met by its competitors. There is a report in circulation that English manufacturers of high-speed steel are offering steel at prices considerably under the American prices, but this price is understood to only apply to large quantities.

Old Material.—The scrap market is marking time. While prices remain unchanged from last week, they have a firm tendency. Dealers are not anxious to sell at this time, as they feel that higher prices will be obtained in the near future. Considerable inquiry is noted for cast scrap, but there is a great scarcity in this line.

Per Gross Ton	
Bundled sheet	\$16.00 to \$17.00
Old iron rails	27.00 to 28.00
Relaying rails, 50 lb. and up	46.00 to 47.00
Re-rolling steel rails	30.00 to 31.00
Heavy melting steel	22.00 to 23.00
Steel rails for melting	24.00 to 25.00
Car wheels	29.00 to 30.00
No. 1 railroad wrought	26.00 to 27.00
Per Net Ton	
Cast borings	\$14.00 to \$14.50
Steel turnings	12.00 to 12.50
Railroad cast	31.00 to 32.00
No. 1 machinery	35.00 to 36.00
Burnt scrap	22.00 to 23.00
Iron axles	29.50 to 30.00
Locomotive tires (smooth inside)	23.50 to 24.50
Pipes and flues	17.00 to 17.50
Malleable cast	23.00 to 23.50
Railroad tank and sheet	16.00 to 16.50

Buffalo

BUFFALO, March 15.

Pig Iron.—The market retains its characteristics of a week ago, with little supply being offered, quiet demand and small sales. It is doubtful whether more than 7000 tons of pig iron were sold during the past week. This constituted tonnages to old customers who have found themselves not properly covered for their requirements and was sold on the basis of \$45 for No. 2 plain, 1.75 to 2.25 silicon; \$46.25 for No. 2 X, 2.25 to 2.75 silicon and \$48 for No. 1, 2.75 to 3.25 silicon. Some iron was sold at \$50 and obtained the higher price because of its superior silicon content. So far as can be learned, no basic was sold. There is an improvement noted in the car situation. The congestion which began in January is beginning to be relieved and furnaces are not piling as much iron as heretofore. Most large consumers are well covered for the remainder of the year, so no large inquiry is looked for. None has materialized to date. Of the iron which was sold during the past week, 4000 tons were taken by one furnace.

We quote f.o.b. Buffalo:

No. 1 foundry, 2.75 to 3.25 silicon	\$48.00
No. 2 X foundry, 2.25 to 2.75 silicon	46.25
No. 2 plain, 1.75 to 2.25 silicon	45.00
Basic	\$43.00 to 44.00
Malleable	46.25
Lake Superior charcoal	58.00 to 60.00

Finished Iron and Steel.—The market is a trifle stiffer than last week, though little product is being sold. There is no difference in the spread of the prices, but the average figure is a little higher. Demand continues strong, with very little offering. Price is no object to buyers, who ask only delivery. Tonnages are being sought here from districts as far west as the Pacific coast, but to small avail. The only tonnages that are being sold are small ones to take care of old customers' current requirements. After a temporary relief from the car shortage for a few days, it is now as acute as ever, according to mill men. Some mills have received no box cars for four days, and are still piling iron. The percentage of operation is about 70 per cent in the mills. Some mills are in serious straits

for coal and coke. There has been a curtailment of the demand for structural shapes, but it is expected that with the resumption of good weather condition the demand will pick up. Mills report only small jobs and not many of those at this time. Wire and nail mills will not be in the market for two or three months. Reinforcing bar mills are sold up and are declining to take pressing inquiry. Failure to obtain supplies of intermediate bars is hampering reinforcing bar makers and this condition may result in considerable first quarter business having to be carried into second quarter.

Warehouse Material.—There is considerable warehouse business in shapes, bars, plates and the various gages of sheets. Many consumers find it to their advantage to buy from warehouses now rather than mills as far as prices are concerned.

Jobbers quote: Soft steel bars, \$4.06; steel plates, \$4.11; structurals, \$3.91; bands, \$4.76; hoops, \$5.01; blue annealed sheets, \$5.71; No. 28 black sheets, \$8.25; No. 28 galvanized sheets, \$9.50.

Old Material.—The market has softened considerably since last week's report, and this has resulted in some drop in prices of commodities quoted in the schedule. The principal commodity to feel the effect of the softened conditions is heavy melting steel, which is now being held by dealers here at \$25 to \$25.50. Mills do not appear interested in scrap in this locality, and there is little interest displayed in surrounding districts. It is believed that a period of quietness will ensue, possibly for some weeks, although dealers say that this condition is liable to change at any time. Mills are devoting most of their efforts to getting out material and are running low on production, so that scrap is not now the primary consideration with them.

We quote dealers' asking prices, per gross ton f.o.b. Buffalo, as follows:

Heavy melting steel, regular grades	\$25.00 to \$25.50
Low phos., 0.04 and under	32.00 to 33.00
No. 1 railroad wrought	33.00 to 34.00
No. 1 machinery cast	38.00 to 39.00
Iron axles	40.00
Steel axles	40.00
Car wheels	37.00 to 38.00
Railroad malleable	31.00 to 32.00
Machine-shop turnings	16.50 to 17.00
Heavy axle turnings	21.00 to 22.00
Clean cast borings	18.00 to 18.50
Iron rail	30.00 to 31.00
Locomotive grate bars	24.00 to 25.00
Stove plate	32.00 to 33.00
Wrought pipe	21.00 to 22.00
No. 1 busheling	20.00 to 21.00
Bundled sheet stamping	17.00 to 18.00

Birmingham

BIRMINGHAM, ALA., March 15.

Pig Iron.—Birmingham f.o.b. iron price schedule still ranges from \$38 to \$43, with sales all along the line, but the bulk was booked at \$40. The Tennessee company quotes \$38, with little available in sight on a one-stack foundry production. One of the largest foundry interests booked 500 tons, March and April delivery, at \$41; 200 tons, second half delivery, at \$42, and other small lots at \$43. Where \$43 is gotten, \$1 for the selling agent is probably involved. A small interest holding at \$43 has sold several small spot lots to consumers under pressure for immediate supply. A large interest that marked up to \$42 two weeks ago has done little business at that figure, but does not see reason to mark down on account of being sold to near capacity for the first half with considerable tonnage also on its third quarter books. There has been a lively inquiry for basic with no recorded acceptances on account of pressure of business booked ahead. The largest business was done by the interest that placed on the market 10,000 tons for second half delivery at \$40. That was quickly absorbed by purchasers in 10 to 12 States, including Ohio, Indiana, Missouri, Illinois, Wisconsin, Minnesota, Iowa, California and Oklahoma. Production is curtailed by inability to assemble raw material. The car shortage is acute and affects every iron and steel industry. The Tennessee company is down to a 7-stack, or 50 per cent active list and Woodward's two idle stacks cannot resume. Woodward at present has two on foundry and one on basic. The Tennessee company has six on basic and one on foundry. One foundry interest

has no more iron for the third quarter. The week may be classed as an off one with the exception of the \$40 sales by the one interest. One concern did not book an order. The \$42 schedule may be regarded as still under fire, with the trade holding off waiting the outcome.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

Foundry, silicon 1.75 to 2.25.....	\$40.00 to \$42.00
Basic	39.00 to 41.00
Charcoal	55.00

Cast Iron Pipe.—With old orders and numerous new ones of small tonnage individually, but large in the aggregate, water pipe concerns are well supplied. The Anniston plant of the United States Cast Iron Pipe & Foundry Co. is installing machinery for manufacture of flange pipe for oil wells. H. B. Rudisill, W. A. Driver and others will at once build a sanitary pipe shop at Anniston, giving that place its twelfth pipe works. This is the fifth new one in Alabama in a few months. Sanitary shops are four to six months behind in deliveries and "swamped" with orders. The schedule remains at \$69 for 4-in. and \$66 for 6-in. and upwards.

Coal and Coke.—Alabama coal output averages 300,000 tons per week, slightly less than normal. Car shortage continues to prevent outbound coke movements and causes declination of Pacific Coast and Texas business, but increases the Birmingham district supply. The price schedule is \$9.50 and \$10.50 for hand-picked.

Old Material.—There is a deadlock in the old material market. The consumers, locally, are well supplied and offer, for new material, prices \$3 average under those at which dealers hold. Result, very little activity in the way of actual transactions. The schedule of holding prices varies materially from that of business done.

We quote per gross ton, f.o.b. Birmingham district yards, prices to consumers, as follows:

Steel rails	\$21.00 to \$21.50
No. 1 heavy steel.....	20.00 to 20.50
Cast-iron borings	11.00 to 11.50
Machine-shop turnings	11.00 to 11.50
Stove plate	24.00 to 24.50
No. 1 cast.....	31.00 to 32.00
Car wheels	30.00 to 31.00
Tramcar wheels	28.00 to 29.00
Steel axles	29.00 to 30.00
No. 1 wrought.....	21.00 to 21.50

Boston

BOSTON, March 16.

Pig Iron.—Continued quietness has characterized the market during the past week. Previously purchased consignments are beginning to arrive more freely from furnaces and consumers are disposed to refrain from fresh purchases pending industrial developments. Prices are steady and unchanged. Virginia iron has been most active, for last half on No. 2 plain and No. 2X, and first half on higher silicons. Southern irons have been second in activity, but their movement north has been retarded by the longshoreman's strike along the Atlantic. The Sloss-Sheffield company is reported as having sold 80,000 tons last month, and 8000 tons up to March 12. Scattering lots of eastern Pennsylvania No. 2X and silicon 1.75 to 2.25 have sold for last half delivery at \$43 to \$45 furnace, limited tonnages of Buffalo, last half, at \$45 furnace, and three small lots of first half malleable at \$45.50 eastern Pennsylvania furnace. No sales of charcoal iron are recorded. Delivered pig iron prices follow:

Eastern Pennsylvania silicon, 2.25 to 2.75	\$46.90 to \$50.15
Eastern Pennsylvania silicon, 1.75 to 2.25	45.65 to 48.90
Buffalo silicon, 2.25 to 2.75.....	48.15 to 50.15
Buffalo silicon, 1.75 to 2.25.....	46.90 to 48.90
Virginia silicon, 2.25 to 2.75.....	47.95
Virginia silicon, 1.75 to 2.25.....	46.70
*Alabama silicon, 2.25 to 2.75.....	47.35 to 50.35
*Alabama silicon, 1.75 to 2.25.....	45.75 to 48.75

*Alongside Boston prices.

Finished Iron and Steel.—Finished iron and steel is beginning to arrive more freely via Boston & Albany

and Boston & Maine Railroad routings, but New Haven Railroad shipments continue disappointing. One mill has advanced structural from 3c. to 3.10c. f.o.b. Pittsburgh, and plates from 3½c. to 4c., but no other changes are reported by local representatives. In cases where small tonnages, two or three months shipment, are concerned, however, one mill is asking 5c. f.o.b. Pittsburgh for plates, and another mill is quoting bars at 4c. mill. The Portland Rolling Mill, a New England concern, has sold small tonnages of re-enforcing bars at 4½c. delivered. The Bethlehem Shipbuilding Corporation is again asking bids on 11,500 net tons of medium common and 1200 tons high tensile steel plates and 1000 tons common bars for the battleship "Massachusetts." The Navy Department may request steel companies to submit bids. The Boston & Maine Railroad is asking bids on additional bridges, the total tonnage now involved in such work being 1200. The H. P. Converse Co. submitted the lowest formal bid on the Springfield, Mass., bridge, and the Fred T. Ley Co., Springfield, the lowest informal, in letter form. The machine tool builders throughout New England are badly in need of ½ in. to 1 in. cold-rolled screw stock.

Warehouse Business.—A further advance in local warehouse prices on iron and steel, amounting to 25c. to 50c. per 100 lb. is announced. This advance is the second recorded so far this month, and is based on small stocks and the inability of warehouses to replace stock except at prices above the contract base. Improved weather conditions have increased demands on warehouses, thereby complicating matters. In some instances, the new advance amounts to more than 50c. For instance, open-hearth spring steel is up \$1 per 100 lb., and crucible \$2, while rubber tire channel is \$2.25 higher at \$10. Structural, plates, blue, black and galvanized sheets also are included in the general advance. Bolts and nuts continue in heavy demand and higher prices are predicted by the jobbing trade.

Jobbers quote: Steel bars, cold rolled rounds, \$6.50 per 100 lb. base; squares, hexagons and flats, \$7 base; soft steel rounds, \$5 base; hexagons, \$7 base; half rounds, \$7; ovals, half-ovals and bevels, \$7.75; flats, 6 in. wide and narrower, over 2 in. thick, \$5.50 base; flats, over 6 in. wide and thicker than 1 in., \$5.85; flats, wider than 6 in. and not even inches, \$5.85; concrete bars, plain round and square, stock lengths, \$5 base; twisted squares, \$5.50; angles, channels and tees, under 3 in., \$5 base; channels and beams, 3 in. and over, \$5; tees, 3 in. and over, standard, \$5.25; Z's, \$5.50; tire steel, 1½ in. x ½ in. and larger, \$6 base; tire steel, narrower and thinner, \$6.50; open-hearth spring steel, \$10 base; crucible, \$15; steel bands, \$6.75 base; bands, over 6 in. wide x ½ in. thick, \$7 net; over 6 in. wide x 3/16 in. thick, \$6.90 net; hoop steel, \$7.75 base; toe calk steel, \$6.75 base; refined iron, except as below, \$5 base; ½ in. and 9/16 in. round and square and 2¾ in. round and square and larger, \$5.40; 7/16 in. round and square and smaller, \$7; over 6 in. wide, \$6.50; best iron, refined, \$6.50 base; Wayne, \$7.50 base; band iron, \$6.75; hoop iron, \$7.75; Norway iron, \$20; all less than full bundles of iron and steel, hoops excepted, ½c. per lb. extra; broken bundles of hoops, 2c. per lb. extra; No. 10 blue annealed sheets, \$6.55 base; No. 28 black sheets, \$8.55 base; No. 28 galvanized sheets, \$10; plates, ¼ in. and heavier, \$5.55 base; a minimum charge of 75c. for cartage on less than 500-lb. lots is made.

Old Material.—The local market is quiet, consumers being more concerned with deliveries of material purchased some time ago, now that the freight congestion is relieved, and the tendency of market values is downward. With the exception of quotations on No. 1 heavy melting steel, and No. 1 railroad wrought, which are considerably easier, local prices show no real change, however. Prices as quoted by the local yards follow:

No. 1 heavy melting steel.....	\$20.50 to \$21.00
No. 1 railroad wrought.....	30.00 to 31.00
No. 1 yard wrought.....	25.00 to 26.00
Wrought pipe (1 in. in diameter, over 2 ft. long)	20.50 to 21.50
Machine-shop turnings	16.50 to 17.00
Cast iron borings.....	19.50 to 20.50
Heavy axle turnings	18.00 to 19.00
Blast furnace borings and turnings..	15.00 to 16.00
Forged scrap	16.50 to 17.50
Bundled skeleton	16.50 to 17.50
Street car axles.....	31.00 to 32.00
Car wheels	35.00 to 36.00
Machinery cast	39.00 to 40.00
No. 2 cast.....	37.00 to 38.00
Stove plate	27.50 to 28.50
Railroad malleable	28.00 to 29.00
Rerolling rails	29.00 to 30.00

Coke.—Some large consumers of coke are still holding off buying and the market during the past week was not as active as anticipated.

New York

NEW YORK, March 16.

Pig Iron.—There is more activity in the pig iron market than for a number of weeks. Inquiries include some of the largest melters, among which are a radiator company inquiring for 9000 tons of No. 2 X for last quarter; the Crucible Steel Co. of America, inquiring for 7000 tons of steel making iron and 2500 of foundry iron; the Baldwin Locomotive Works, inquiring for 3000 tons of foundry grades to be delivered at the rate of 1000 tons per month, beginning immediately; the B. & O. Railroad, in the market for 3000 tons of foundry iron for early delivery. There is also a very brisk inquiry from abroad, including considerable tonnages for Great Britain and Italy. While inquiry for a large tonnage of basic for export is not taken very seriously, it is believed that there is a bona fide inquiry for at least 20,000 tons of foundry iron. A very small tonnage has been sold for export and there is excellent prospect of some important transactions with foreigners being closed. An unfavorable feature in export conditions is the advance in freight rates from Birmingham to New Orleans from \$1.80 f.a.s. to \$3.45 f.a.s. There is a marked scarcity of Virginia irons, but the quotation has not been advanced from \$42 furnace, or \$46.40, New York. There is also a scarcity of eastern Pennsylvania iron and not much is available at the lowest base price being quoted, \$43. On the whole, the outlook is for higher prices, especially if any considerable tonnage is exported. Some embargoes in the New England territory have been lifted and deliveries are going forward more satisfactorily at numerous points.

We quote for delivery in New York as follows:

No. 1 foundry, sil. 2.75 to 3.25.....	\$47.05 to \$48.05
No. 2 X, sil. 2.25 to 2.75.....	46.05 to 47.05
No. 2 plain, sil. 1.75 to 2.25.....	44.80 to 45.80
No. 2 X, Virginia, sil. 2.25 to 2.75....	46.40

Ferroalloys.—Domestic producers of ferromanganese are now asking \$180, delivered, for the second half, which is the minimum. The market is quiet but stronger because of this and also because of the fact that less and less British alloy appears obtainable. Sales of a total of about 2000 tons of domestic product for deliveries in March and throughout the year have been made as high as \$230 and down to \$175, delivered. For March shipment \$235 is reported with \$200 for second quarter and \$175, delivered, for later shipment. The sale for March delivery for \$230 is thus far the highest since the armistice. There are inquiries for export for a few lots of 100 tons each, one of these coming from Spain. Scarcely any British alloy is available for any deliveries, the seller which had a limited amount on hand for shipment from August to December, available at \$165, seaboard, having closed this out. The spiegeleisen market is very strong, \$60, furnace, being now the minimum for early delivery. Demand from domestic consumers is light but for foreign consumption there are at least 15,000 tons under negotiation. The market for 50 per cent ferrosilicon is quiet but strong at \$85 per ton, delivered, one important seller having for the present withdrawn from the market.

Finished Iron and Steel.—The local market is quiet, due largely to an unwillingness on the part of independent mills to book into the future and inability to meet the deliveries otherwise demanded. The chief items of interest have to do with the export market. These include the sale of 500 tons of plates, nearly $\frac{3}{4}$ in. in thickness, in large, attractive sizes, for Japan, closed at 4c., Pittsburgh. England is trying to buy 10,000 and more tons of plates on which 3.75c., Pittsburgh, and higher, has been quoted. The exchange situation has not yet shown a marked effect on export inquiries and the business being done is at a level close to or at the domestic market. Keen competition exists in sheets with Great Britain for South America, but owing to high British prices the American business is done at figures \$15 and more than minimum prices in the United States. Some doubt is expressed that much over \$7 per base box will be obtained on the approaching semi-annual settlement on tin plate purchases. No

additional influx of railroad business has come to the local market, and the completion of existing negotiations is still uncertain in respect to the financial arrangements. It is likely that even for what is now before the market there may be some displacement of mill schedules so far as the general buyer is concerned. One negative note that has appeared relates to the decision by Danish shipyards to abandon some shipbuilding projects on account of high prices. General quotations for the major lines of finished steel for the larger lots for reasonable delivery appear to be now at 3.25c. for shapes, 3.50c. for bars and 3.75c. to 4c. for plates.

Prices on bar iron have materially stiffened. For the general run of sizes there are few quotations below 4c., Pittsburgh, an advance of \$10 per ton over recent ruling prices, while for smaller sizes quotations average \$20 a ton higher. The large volume of fabricated business done in February, amounting to 95 per cent of the capacity of the country's shops, is noted elsewhere in this issue. New projects include an office building, Maiden Lane and Nassau Street, 900 tons, and a building for the Fisk Rubber Co., Fifty-seventh Street and Broadway, 5500 tons. Early decisions are expected on a highway bridge over the Connecticut River at Springfield, involving 2250 tons, and on 1100 tons for the Boston & Maine. The Standard Oil Co. is again considering a pier at Bayonne, 600 tons. The American Bridge Co. has closed for 1000 tons for building and bridge work for the Lackawanna Railroad and the McClintic-Marshall Co. has been awarded 625 tons for the Baltimore Copper Smelting Co.

We quote for mill shipment, New York, as follows: Soft steel bars, 2.62c. to 4.77c.; shapes, 2.72c. to 4.27c.; plates, 2.92c. to 4.27c., the minimum prices being for indefinite delivery and the higher prices for the second quarter; bar iron, flats, wider than 6 in., 4.57c.; $\frac{3}{4}$ and $\frac{7}{16}$ in., round and square, 5.27c.; light rounds, squares and flats, 5.77c., and other sizes, 4.27c.

Warehouse Business.—Deliveries to local consumers have improved materially with moderating weather, and will shortly be brought up to date. Inquiry is without restraint; but buying is largely limited to incoming mill shipments, as stocks are the nearest to an ultimate minimum that the trade has ever known. Two large jobbers of sheets, for example, have recently had not over 2 per cent of their normal stocks. Many other lines are similarly wiped out, and replenishing warehouses will be a slow matter as long as incoming mill shipments continue to be scattering. The receipt of material for the time being is largely of cars that have been storm-bound en route. Iron and steel prices are nominally as quoted on page 868; but stock actually to be had may fetch whatever the needs of the buyer dictate. One large dealer has advanced hoops and bands \$10 a ton, and blue annealed \$11 a ton. Standard cast steel is now quoted 1c. per lb. higher, or 15c. base, and higher base prices are expected to follow for extra and special grades.

Cast-Iron Pipe.—The price has again been advanced, this time \$2. Because of the large volume of orders makers are confident that these new prices can be maintained easily. The raise was effective March 10, and applies to all sizes. Surprise has been expressed widely because of the poor financial showing for 1919 of the United States Cast Iron Pipe & Foundry Co. However, a different story is expected for this year, judging by the present heavy inquiries. We now quote 6-in. and heavier at \$72.30, New York; 4-in. \$75.30, with \$2 additional for Class A and gas pipe.

Old Material.—The market is decidedly softer with the exception of stove plate, particularly in heavy melting steel, which turned downward last Friday when the Bethlehem Steel Co. lowered its buying price from \$24 to \$23. Other items are tending downward in sympathy. A consumer in Mahwah, N. J., has been paying from \$33 to \$34 for stove plate, which makes the buying price, New York, about \$31. For the moment there seems to be a fair abundance of cast scrap and prices are weaker, though one broker is paying \$2 a ton more for heavy machinery cast, breakable under a drop, than he did a week before. Prices of more select heavy

melting steel for Pittsburgh, of which comparatively few tonnages are now being shipped, range from \$22 to \$22.50.

Buying prices per gross ton, New York, follow:	
Heavy melting steel.....	\$20.00 to \$21.00
Rerolling rails.....	31.00 to 32.00
Relaying rails, nominal.....	48.00 to 50.00
Steel car axles.....	34.00 to 35.00
Iron car axles.....	43.50 to 44.00
No. 1 railroad wrought.....	33.00 to 34.00
Wrought iron track.....	24.50 to 25.00
Forge fire.....	18.00 to 18.50
No. 1 yard wrought, long.....	27.00 to 27.50
Light iron.....	10.00 to 11.00
Cast borings (clean).....	19.00 to 19.50
Machine-shop turnings.....	16.00 to 16.50
Mixed borings and turnings.....	16.50 to 17.00
Iron and steel pipe (1 in. min. diam., not under 2 ft long).....	21.50 to 22.00
Stove plate.....	31.00 to 32.00
Locomotive grate bars.....	29.50 to 30.00
Malleable cast (railroad).....	29.00 to 30.00
Old car wheels.....	39.00 to 40.00
Prices which dealers in New York and Brooklyn are quot- ing to local foundries, per gross ton:	
No. 1 machinery cast.....	\$41.00 to \$42.00
No. 1 heavy cast (columns, building materials, etc.), cupola size.....	40.00 to 41.00
No. 1 heavy cast, not cupola size.....	31.00 to 32.00
No. 2 cast (radiators, cast boilers, etc.).....	33.00 to 34.00

Philadelphia

PHILADELPHIA, March 16.

A marked betterment in the movement of coal, which manifested itself early in the month, has not been maintained, and the situation as to coal supply for Eastern steel plants is worse than a week ago. One reason assigned for the lack of coal at steel plants is commandeering by the railroads of coal for their own needs. Production is, therefore, not showing the gains that had been expected. High water in the Susquehanna River has seriously interfered with operations at the plant of the Central Iron & Steel Co., Harrisburg, some of the open-hearth furnaces having been put out by the rising stream.

Demand for pig iron, steel and old material is not active. So far as pig iron and steel products are concerned, manufacturers are not pressing for business. There is a good demand for bars, but otherwise steel inquiries have continued to fall off. More plate mills are willing to take orders for delivery in second quarter, but as a rule they desire only tank steel in thicknesses of $\frac{1}{2}$ in. or more.

A sale of a few thousand tons of basic pig iron has been made at \$43.50, furnace, a new high record. Foundry grades are relatively quiet.

Pig Iron.—An Eastern furnace has sold a few thousand tons of basic pig iron for second half shipment at \$43.50, furnace, with a freight rate of \$1.30. This is \$1.50 a ton higher than the last reported sale. Foundry grades are relatively quiet, but some business is being done for second half. One office last week sold upward of 6000 tons to various customers; another booked about 2000 tons and there has been other scattered buying. At this writing an Eastern pipe company is about to close for 5000 tons or more of No. 3 foundry iron and the Baldwin Locomotive Works has come into the market for 3000 tons or more of foundry iron, 2.50 to 3.25 per cent silicon, for delivery in second quarter. Recent sales of copper bearing low phosphorus iron at \$47 have pretty well filled the order books of furnaces making this grade, and an advance in price is predicted. Standard low phosphorus is still quoted at \$50, furnace. Very little Alabama iron for Northern shipment has been disposed of in this market for some time past; therefore, the sales of 1000 tons at \$40.50, Birmingham, and 200 tons at \$42, furnace, are of interest. These prices apply to the base grade, 1.75 to 2.25 per cent silicon.

The following quotations are for iron delivered in consumers' yards in Philadelphia or vicinity, except those for low phosphorus iron, which are f.o.b. furnace:

Eastern Pa., No. 2 X, 2.25 to 2.75 sil.	\$45.35 to \$46.35
East. Pa., No. 2 plain, 1.75 to 2.25 sil.	44.10 to 45.10
Virginia No. 2 plain, 1.75 to 2.25 sil.	46.10
Virginia No. 2 X, 2.25 to 2.75 sil.	47.35
Basic deliv. Eastern Pa.	44.80
Gray forge	43.00
Standard low phos. (f.o.b. furnace)	50.00
Malleable	46.75
Copper bearing low phos. (f.o.b. furnace)	47.00

Ferroalloys.—Domestic makers of ferromanganese

have advanced their price to \$180, delivered, for 76 to 80 per cent, following a number of sales on outstanding quotations at \$160, delivered. No sales have yet been made at the new level. An occasional carload of ferromanganese for prompt delivery brings \$200 to \$225. Spiegeleisen is quiet.

Coke.—The shortage of coke becomes more serious. Some foundries have shut down because of inability to get sufficient coke for continuous operation. Others are badly hampered. Pig iron sellers are frequently told by foundrymen that they would buy more pig iron if they could get more coke. Blast furnaces are also hampered. Several merchant furnaces in the East are operating with the blast slowed down.

Semi-Finished Steel.—Billets are harder to obtain. The market is quotable at about \$65, Pittsburgh, based on recent sales, but \$70 could be done without doubt if early deliveries could be guaranteed. Semi-finished steel, particularly wire rods, are in demand for England, but it is next to impossible to obtain supplies.

Plates.—There is no large demand for plates at the top price of 4c., Pittsburgh, now being asked by most of the mills which can make shipments in the first half, but the mills are able to book all of the business that they care to. More mills are willing to book orders if they can obtain such desirable specifications as tank steel in thicknesses of $\frac{1}{2}$ in. or greater, but will not accept light plates or ship steel. Two inquiries for ship steel from the Pacific Coast for about 5000 tons each have been received here. Eastern mills, Harrisburg and at Coatesville have been seriously hampered in the past week by high water. Locomotive and car repair material is in demand. The railroads are finding it difficult, however, to estimate their actual needs for car repairs, as most of their cars are scattered throughout the country. One Eastern road, it is said, has only about 30 per cent of its cars on its own tracks. For fairly early delivery the market is quotable at 4c., Pittsburgh, but around 3.50c. can be done with delivery at mill convenience.

Structural Material.—Steel mills rolling shapes, with one or two exceptions, are not inclined to accept orders if it can be avoided. One company has advanced its price to 4.50c., Pittsburgh, to ward off business. Several Philadelphia building projects, which have been under consideration for some months, are being held up because contractors will not now undertake such work except on a cost-plus basis. The market is quotable at 3.50c. to 4c., Pittsburgh, with most sales at the higher figure.

Old Material.—The scrap market is extremely quiet, with prices almost stationary. Opinions in the trade are conflicting, some believing the market will go lower and others that spring buying by the mills will push prices higher. We quote for delivery at consuming point in this district as follows:

No. 1 heavy melting steel.....	\$25.00 to \$25.50
Steel rails rerolling.....	34.00 to 35.00
No. 1 low phos., heavy 0.04 and under	34.00 to 35.00
Car wheels.....	42.50 to 45.00
No. 1 railroad wrought.....	36.50 to 37.50
No. 1 yard wrought.....	30.00 to 32.00
No. 1 forge fire.....	22.00 to 23.00
Bundled skeleton.....	21.00 to 22.00
No. 1 busheling.....	24.00 to 25.00
No. 2 busheling.....	18.50 to 19.50
Turnings (short shoveling grade for blast furnace use).....	19.00 to 20.00
Mixed borings and turnings (for blast furnace use).....	19.00 to 20.00
Machine-shop turnings (for rolling mill and steel works use).....	20.50 to 21.00
Heavy axle turnings (or equivalent)	23.00 to 24.00
Cast borings (for rolling mills)....	23.00 to 24.00
Cast borings (for chemical plant)...	28.00 to 30.00
No. 1 cast.....	40.00 to 41.00
Railroad grate bars.....	30.00 to 31.00
Stove plate.....	30.00 to 32.00
Railroad malleable.....	30.00 to 31.00
Wrought iron and soft steel pipes and tubes (new specifications)....	25.00 to 26.00
Iron car axles.....	45.00 to 46.00
Steel car axles (f.a.s. New York for export).....	39.00 to 40.00

Bolts.—One large Eastern maker of bolts has opened books for second quarter contracts. On account of the great demand for small bolts makers are now insisting that not more than 50 per cent of the maximum amount called for in each contract be specified in sizes $\frac{1}{4}$, $\frac{5}{16}$ and $\frac{3}{8}$ in.

Bars.—The scarcity of bars continues and few mills are in a position to take any business. One that is closing contracts with its customers for second quarter finds no difficulty in getting 4c., Pittsburgh. Small lots for early delivery are being sold at upwards of 4c. Bar iron is in fair demand, with the price still on the basis of 4c., Pittsburgh.

F. R. Phillips & Sons Co., Pennsylvania Building, Philadelphia, iron and steel, has opened a London, England, office at 64 Victoria Street and a Pittsburgh office in the Bessemer Building. The Pittsburgh office is in charge of H. A. MacEwan.

St. Louis

ST. LOUIS, March 15.

Pig Iron.—The pig iron market has been rather quiet the past week, the melters having apparently covered all their immediate needs and also being affected somewhat by possible trouble with molders who, having been granted an increase to \$7.20 per day, are inclined to insist on \$8. There is also a disposition on the part of consumers to regard the market as high enough and although there is a range of \$40 to \$43 per ton, Birmingham, quoted on No. 2 Southern iron, there is little if any tendency to buy at even the lowest prices, while furnaces asking the high price are regarded as using that method to show their disinclination to sell. The sales, therefore, during the week, were negligible in quantity so far as the gray iron foundries and stove men were concerned, while the big users of basic are also still out of the market.

Old Material.—The scrap market has been quiet with both dealers and consumers playing a waiting game, the latter using their stocks on hand and refraining from buying any material except specialties needed for particular purposes. The big consumers are staying out of the market with special persistency and the only activity is in specialties that are hard to get. Axles, car wheels, relaying rails and horseshoes are among the items in short supply. Lists out include 1000 tons from the Mobile & Ohio and 250 tons from the cotton belt.

We quote dealers' prices, f.o.b. customers' works, St. Louis industrial district, as follows:

Per Gross Ton	
Old iron rails.....	\$32.50 to \$33.00
Old steel rails, rerolling.....	32.50 to 33.00
Old steel rails, less than 3 ft.....	28.00 to 28.50
Relaying rails, standard sections, subject to inspection.....	50.00 to 55.00
Old car wheels.....	34.50 to 35.00
No. 1 railroad heavy melting steel.....	24.50 to 25.00
Heavy shoveling steel.....	23.00 to 23.50
Ordinary shoveling steel.....	22.00 to 22.50
Frogs, switches and guards, cut apart.....	26.00 to 26.50
Ordinary bundled sheets.....	14.50 to 15.00
Per Net Ton	
Heavy axle and tire turnings.....	17.00 to 17.50
Iron angle bars.....	29.50 to 30.00
Steel angle bars.....	24.00 to 24.50
Iron car axles.....	39.50 to 40.00
Steel car axles.....	33.50 to 34.00
Wrought arch bars and transoms.....	31.00 to 31.50
No. 1 railroad wrought.....	25.50 to 26.00
No. 2 railroad wrought.....	23.50 to 24.00
Railroad springs.....	24.00 to 24.50
Steel couplers and knuckles.....	24.00 to 24.50
Locomotive tires, 42 in. and over, smooth inside.....	23.50 to 24.00
No. 1 dealers' forge.....	23.00 to 23.50
Cast iron borings.....	15.00 to 15.50
No. 1 bushelings.....	22.00 to 22.50
No. 1 boiler, cut to sheets and rings.....	18.50 to 19.00
No. 1 railroad cast.....	35.50 to 36.00
Stove plate and light cast.....	30.50 to 31.00
Railroad malleable.....	26.00 to 26.50
Agricultural malleable.....	25.50 to 26.00
Pipes and flues.....	20.50 to 21.00
Heavy railroad sheet and tank.....	20.00 to 20.50
Railroad grate bars.....	29.50 to 30.00
Machine-shop turnings.....	15.00 to 15.50
Country mixed.....	22.00 to 22.50
Uncut railroad mixed.....	22.50 to 23.00
Horseshoes.....	25.00 to 25.50

Finished Iron and Steel.—In finished products the conditions remain as they have been for some time, the little let up in the tightness of the second quarter situation reported last week having ended and the quantity of material available having been allotted. Prices continue at 2.45c. for structural, 2.65c. for tank plates and 2.35c. for bars, with none of the last named at all possible. Consumers are still anxious to get

material, but realizing the situation are not pressing the mill representatives. In the warehouses there has been no change from the situation as to deliveries or prices save that No. 10 blue annealed sheets have been marked up.

For stock out of warehouse we quote as follows: Soft steel bars, 3.94c.; iron bars, 4.59c.; structural material, 4.04c.; tank plates, 4.24c.; No. 10 blue annealed sheets, 6.09c.; No. 28 black sheets, cold rolled, one pass, 7.10c.; No. 28 galvanized sheets black sheet gage, 8.60c.

Coke.—The coke situation is still about as previously reported. No coke is coming through except that under old contracts, and no new sales are wanted by the ovens, even if transportation could be had, which is not possible to any degree now over that accorded to coke under long contracts made some time ago.

San Francisco

SAN FRANCISCO, March 9.

There is a shortage in this market of practically all iron and steel materials. The most serious shortage among the jobbers is in the wrought pipe situation. This shortage is said to exist now in all sizes, and there seems to be no immediate prospect for a betterment of the situation.

While high prices are affecting the demand to some extent, the shortage in supplies is so great that no stocks are accumulating. The labor situation shows no change, excepting that an official stand has been taken by the molders' union against furnishing castings to non-union machine shops.

Finished Material.—Bars continue in heavy demand, with buyers paying premiums for quick delivery. The output of the local mills is inadequate to supply the present demand. The Pacific Rolling Mills, San Francisco, has been awarded the contract for the steel for the new 15-story structure to be erected in this city for the Commercial Union Assurance Co. There is a scarcity of both plates and sheets. Galvanized and blue anneal sheets are in excellent demand. Jobbers report their stocks of wrought pipe to be lower than ever. An important contract for 1300 tons of 24-in. pipe for the Los Angeles water department was let for steel pipe to the Lacey Mfg. Co., Los Angeles, in competition with bids by manufacturers of cast iron pipe.

Cast Iron Pipe.—There is constant inquiry for cast iron pipe, most of which are expected to develop into business in the future. Some of this inquiry is from the Orient, and considerable trade in export is expected to develop. Among recent contracts awarded in this neighborhood were 270 tons of 4-in., 6-in. and 8-in. pipe for Calxico and 66 tons of 4-in. and 6-in. pipe for Redwood City to the United States Cast Iron & Foundry Co.

Pig Iron.—There is a tendency among the foundries to use more pig that in the past on account of the scarcity of scrap. If business were in a normal condition, it is believed that this tendency would be much more marked and it is predicted that San Francisco in the future will consume much more pig iron than in the past.

Old Material.—There were no changes in the scrap situation this week. The sale of the old copper smelter near Fresno for scrap is still being talked of. It was the only important development of the week. It will eventually bring about 3000 tons of scrap to this market, which will fetch about \$30 if the predicted shortage continues.

The United States Civil Service Commission announces the following examinations: Expert designer at \$4,200 a year, the duties pertaining to steam, electric or hydroelectric power plants (form 1312); junior construction, designing and marine engineers at \$1,800 to \$2,400 a year (form 2118); marine, mechanical and electrical engineers at \$2,400 to \$4,000 a year (form 2118). Applicants should apply for the form indicated, stating the title of the examination desired, to the Civil Service Commission, Washington, or to the secretary of the United States Civil Service Board at the nearest custom house.

British Prices Again Higher

Welsh Steel Works Resumed Pending Negotiations—American Tin Plates Sold— No Prompt Iron

(By Cable)

LONDON, ENGLAND, March 16.

Pig iron producers are now booking a small amount for forward shipment at advanced prices, but only for domestic consumption, and are not quoting for export. Prompt delivery iron is unobtainable. The shortage of hematite iron is very acute and West Coast iron has been sold to Italy for £14 5s., f.o.b. for June-August delivery.

Makers of steel are more than ever disinclined to quote. Welsh steel works have resumed operations unconditionally, the matters in dispute to be discussed this week. Small lots of German steel plates, $\frac{1}{8}$ to $\frac{1}{4}$ in., have been sold at £35, f.o.b. for prompt shipment. German bars, $\frac{5}{8}$ to 1 in., have been sold at £27 10s., f.o.b., for April-May shipment.

The tin plate market is very firm, with 75s., f.o.t., paid for third quarter shipment and 80s. asked for stock plates. Some works are still idle, waiting for supplies of steel, and deliveries of tin plates are greatly in arrears. American tin plates, 200 lb., have sold at 131s. 6d., c.i.f. United Kingdom, March-April delivery.

The galvanized sheet market is strong, £56, f.o.b., having been paid for No. 24-gage corrugated, April-June shipment. Japan is bidding for a large quantity of unusual specifications for thin gages.

A group of Clyde shipbuilders has offered for purchase all of the common shares of the Steel Co. of Scotland at £35 for each share, these shares being all £10 each, fully paid.

Prices for Cleveland pig iron have been advanced, No. 3 foundry now being quoted at 200s. for domestic consumption and 205s. for export to the allies. Hematite iron is now quoted at 260s. for domestic use and 265s. for export to the allies. Cleveland basic iron is quoted at £10 10s.

We quote per gross ton, except when otherwise stated, f.o.b. makers' works, with American equivalent figured at \$3.74 for £1, as follows:

	£	s.	£	s.	
Ship plates	24	10 to 28	10		\$91.63 to \$104.72
Boiler plates	28	10 to 32	0		104.72 to 119.68
Tees	22	10 to 29	0		84.15 to 108.46
Channels	21	15 to 28	5		81.34 to 105.65
Beams	21	10 to 27	0		80.81 to 100.98
Round bars, $\frac{3}{4}$ to 3 in.	24	0 to 29	10		89.76 to 110.33
Rails, 60 lb. and up.	21	0 to 22	0		78.54 to 82.28
Billets	24	0 to 25	0		89.76 to 93.50
Sheet and tin plate bars.					
Welsh	30	0 to 32	0		112.20 to 119.68
Galv. sheet, 24 g.	51	0 to 56	0		190.74 to 209.44
Cleveland basic iron.	10	10			39.27
West Coast hematite.	13	0 to 13	5		48.62
Cleveland No. 3 foundry (export to allies)	10	5			38.33

Difficulties No Less—Large Foreign Inquiries—Germany Not Delivering

LONDON, ENGLAND, March 1.—General conditions in the Cleveland pig iron market remain unchanged. Up to the present there has been no alteration in prices, which remain at 182s. 6d. for No. 1 and 175s. for No. 3 Cleveland, G.M.B. For export to France, Belgium and Italy, prices are nominally 5s. higher, while for shipment to other countries the price would be nominally around 230s. There is, however, practically no iron available for such markets. Foundry iron continues very scarce, and unfortunately there seems to be little prospect of any increased output from idle furnaces, owing to the shortage of coke. Existing contracts are sufficient to absorb practically all of the output, and new business is at a standstill, makers being booked up for some time ahead. It has now come to a point where consumers would really welcome a rise in prices if such an event were to result in

booking orders. As a matter of fact, the demand is so strong that prices are only a secondary consideration.

Producers of East Coast Hematite state that the present level is unremunerative, and they are holding off. Therefore, the present figures of 220s. for the home trade and 230s. for Belgium, France and Italy are really only nominal. If any quotation were made at all for export to other overseas markets it would probably be about 250s.

With reference to steel, the difficulties which are met with in the transaction of business do not become any less and at present the extraordinary situation is seen of almost the whole world, not excluding producing countries, coming to the British market for iron and steel materials. America is reported to be inquiring for large quantities of sheets, while France and Belgium are also endeavoring to place orders with British manufacturers. The inquiry from the East is rather less pressing, and there is a disposition among merchants to move cautiously as to new business. The present very high level of prices, and the fact that sellers are insisting on clauses in contracts safeguarding themselves seems to be checking business with the East.

Some inquiries have appeared from Holland, apparently owing to German manufacturers having failed in deliveries of material contracted for. Generally buyers are in abundance for all kinds of material, though a few are holding back, feeling that prices have reached a dangerous level. Home consumers are literally begging for supplies, and finding the greatest difficulty in covering their requirements. Plates in particular are scarcer than ever, while small size angles are unobtainable.

In connection with the offer made to purchase the £3 ordinary shares of Baldwins, Ltd., it is understood that the proposal was made on behalf of the group interested in the Northumberland Shipbuilding Co. Baldwins are credited with the distinction of having the largest output of pig iron of any in this country and are of course large producers of galvanized iron. During its career the company has absorbed various units, one of the most recent of its acquisitions being that of the British Steel Corporation. The Shelton Iron & Steel Co., Ltd., intimates that negotiations have taken place between some of the large shareholders, and Messrs. John Summers & Sons, Ltd., which have resulted in the acquisition by the latter of the majority of the Shelton shares.

Sheffield Steel Products, Ltd., has taken a further step forward in the direction of making itself independent of outside sources of supply by the purchase of the foundry in Mowbray Street, Sheffield, hitherto operated by Oxley Bros., Ltd.

Exports of Metal-working Machinery

WASHINGTON, March 16.—England was the chief purchaser of American metal working machinery in January, 1920, according to the report of the Bureau of Foreign and Domestic Commerce. These exports to that country aggregated \$724,298. France was second with purchases totaling \$718,027; and Canada third with \$612,438. Japan bought \$343,746 worth. Total exports of metal working machinery for the month were \$3,453,946, of which lathes aggregated \$631,271; other machine tools, \$816,773; sharpening and grinding machines, \$393,374; all other metal working machinery, \$1,611,528.

The bureau also showed the total figures of exports of tin plate,terne plate and taggers tin during January, 1920. Out of a total export of 46,099,305 lb., worth \$3,406,388, Japan received the largest total—18,755,671 lb., worth \$1,427,612; Canada was second with 10,145,860 lb., valued at \$729,351; and Brazil was third with 3,316,472 lb., worth \$224,051. China was less than four tons behind with 3,038,867 lb., worth \$220,331.

The Anker Engineering Co., Widener Building, Philadelphia, of which H. A. Jensenius, hydraulic engineer, is the manager, has taken over the Philadelphia district agency of the Watson-Stillman Co., New York.

TRADE WITH RUSSIA

State Department Urged to Deal With Soviet— Opposition States Its Position

The American Commercial Association, New York, which is urging the State Department to open trade with Soviet Russia, has been assured that the department will endeavor to work out a plan for the granting of permission to trade without official recognition of the Government, according to Harold Kellock, secretary of the association. Mr. Kellock says further that several Republican senators and representatives have stated that, providing the State Department does not act, they will introduce resolutions in Congress urging the opening of trade. The memorandum presented by a committee of the association when it called on the Department of State, pointed out that Russian gold has been deposited in British banks and British firms are evidently dealing with Russia. It insists that full shipping rights be extended, and that mail, telegraph and wireless communication be opened with Russia. The memorandum concludes by stating that the Russian market is undoubtedly open to rivals of American business and that American business men should be placed on an equal footing with those of other countries.

Among the several commercial organizations oppos-

ing all attempts to have trade with Soviet Russia opened, is the Russian Economic League, 233 Broadway, New York. Jerome Lansfield of the league speaking of trade possibilities with Russia under the Soviet government, says:

"Our opposition to trade of any kind with the Soviet is based on the facts that such a Government is inimical to American institutions; that American business men do not want long litigation such as the Scandinavian countries have experienced through the purchase from the Soviet of property seized from private owners; and that trade with Russia now would be distinctly to her detriment, as she is scarcely producing sufficient for her own needs and with present railroad conditions cannot move any quantity of material to the ports."

Mr. Lansfield says that Britain is not dealing with the Soviet Government and that the trade statistics quoted, while they are accurate, fail to state that in 1919 southern Russia and most of Siberia were in control of the All-Russia Government. Investigation by the Russian Economic League of firms said to have contracts with the Soviet Government showed, according to Mr. Lansfield, that in numerous cases the Soviet representatives had merely written for catalogs, stating that were trade permitted by the United States, their Government would like to purchase.

EXPORT STILL ONE-SIDED

England Buys Tin Plate and May Demand Pig Iron Soon—South America Buys Small Amounts in Europe

Export business still continues one-sided with Japan continually in the market for all kinds of semi-finished and finished material and practically nothing from European markets. Exporters with good connections in England and Belgium look forward to exporting some pig iron if the conditions in the British pig iron business continue as acute as at present. One exporter dealing with Europe recently received a good sized order for pig iron from Italy at his own price, but the terms offered by the Italian buyer were not satisfactory. A company trading chiefly in South America has withdrawn from the market temporarily, as its South American customers claimed that they could get better terms and quicker deliveries on small quantities from European sellers. Another company, dealing with Japan, has withdrawn from export selling and will not quote prices to its customers until present unplaced orders totaling more than 10,000 tons of material have been placed.

Exporters who have agreements with the mills continue to do a good business with Japan. One well-known concern is looking forward to this month being the largest this year, having shipped more than 6000 tons of finished and semi-finished material to Japan up to March 10. This included about 1600 tons of bars and various amounts of galvanized wire and sheets, structural material, angles and plates. The same company recently received an allotment from a mill of 500 tons of Nos. 10 to 15 gage, blue annealed sheets, which it is apportioning to its Japanese customers. The tin plate demand from England continues strong owing to the strike of the Welsh tin plate workers, and one exporter recently sold a quantity at \$22 a box spot, f.a.s. New York, while another has filled several small orders at \$14 a box, base. An exporter with an order for about a quarter of a million dollars worth of boiler tubes was unable to find a mill to accept it.

Shipping Board Steel Being Resold

Of the 300,000 tons of plates, shapes and bars which the Barde Steel Products Corporation, 114 Liberty Street, New York, bought from the United States Shipping Board, as announced in THE IRON AGE of Feb. 5, the corporation has sold about 80,000 tons since Jan 15, when it was formed. Sales are being made to

jobbers or direct to users. Because of the large tonnages involved and because of Government aid in transporting these products, slightly lower than prevailing prices have been quoted on the lots sold. Shipbuilding companies are the principal buyers, not only in the United States and Canada, but abroad. Among tonnages disposed of outside the United States recently are included 20,000 tons to England, 8000 tons to Italy and 10,000 tons to Japan through a Pacific Coast concern. Negotiations are about completed for the sale of 15,000 tons additional to Scotland, all of these tonnages being for ship use. L. Baron, general export manager of the corporation, states that all steel sold is free from deterioration and will pass rigid inspection. The corporation bought the tonnages from the Government at their locations at the time of sale, which were in shipyards or at steel plants.

Westinghouse Electric to Enlarge

The Westinghouse Electric & Mfg. Co., East Pittsburgh, has placed a contract with Westinghouse, Church, Kerr & Co., New York, for the erection of four more buildings at its South Philadelphia works, this expansion being intended to take care of the immediate needs incidental to the removal of the Westinghouse Machine Co. plant from East Pittsburgh to South Philadelphia. The four buildings will be of terra-cotta and steel, similar to the present buildings, and will consist of a one-story light machine shop, 130 x 500 ft. This structure will be used for building small turbines for driving pumps and generators. Machine shop No. 3 will be a duplicate of the present machine shop No. 1, and will be 130 x 750 ft. in size. Very large land and sea turbines will be machined in this building. The erecting shop will be extended 300 ft. and will join the new shop No. 3, as it does shops Nos. 1 and 2. All of the work, as it progresses, will move toward the erecting shop for final assembly and testing. A three-story building, 500 x 600 ft. will be erected to provide warehouse facilities, the third floor of the building to be used for manufacturing purposes. Nearly all the machinery necessary for production purposes will be transferred from the works of the Westinghouse Machine Co., East Pittsburgh, and will be directly driven by motors, thus doing away with all overhead shafting.

High waters of the raging Susquehanna River at Harrisburg, Pa., last week flooded the plant of the Central Iron & Steel Co. The open-hearth department was closed for several days, while operation in the mills was curtailed for a short time.

IRON AND INDUSTRIAL STOCKS

General Improvement in Values Since Court's Decision on Stock Dividends

NEW YORK, March 16.

Stock market values, generally speaking, have had an upward tendency since the United States Supreme Court rendered its decision on the stock dividend case. This decision, coming as it did on the heels of the decision on the United States Steel Corporation dissolution case, completely changed the investment atmosphere. To be sure, there have been periods during the past few days when the stock market has reacted, due to further signs of tightening money rates, but the general list is materially above its level of a week ago.

The steel stocks, especially those of companies which possibly may make stock distributions during 1920, have been steadily bought for investment, the market for them being materially strengthened by the tremendous amount of unfilled business on books. The unfilled tonnage of the Steel Corporation, for instance, is less than 3,000,000 tons below the high record figures. Automobile shares also have been bought freely, as other industrial stocks have, the demand, no doubt, being influenced to a considerable extent by the more favorable railroad transportation conditions in the East and Middle West, which will permit a freer movement of raw and finished materials. The better transportation situation most certainly has been reflected in railroad securities.

Conditions governing the copper metal market are less favorable than they were a month or so ago, there now being comparatively little buying, a surplus of something like 200,000,000 lb. on the market and a tendency toward lower asking prices. Naturally the improvement in copper shares has been less than in iron and industrial issues. Speculation in securities has been confined largely to the oil group, the buying being based on advancing prices for crude oil. Fundamental investment buying has been limited to steel, certain kind of industrial and railroad securities.

The range of prices on active iron and industrial stocks from Tuesday of last week to Wednesday of this week was as follows:

Allis-Chalm. com. 41½-44	Lackaw. Steel.... 72¾-74¾
Allis-Chalm. pf. 81-84	Lake Sup. Corp. 19¾-20½
Am. Can com. 43¾-48¾	Midvale Steel.... 46¼-48¾
Am. Can pf. 97¾-98	Nat.-Acme 36½-36¾
Am. Cr. & F. com. 138-142	Nat. E. & St. com. 75-78¾
Am. Cr. & F. pf. 112¼-113¼	N. Y. Air Brake... 100-107½
Am. Loco. com. 97-102	Nova Scotia Stl. 60-64¾
Am. Loco. pf. -106	Pressed Stl. com. 96-98¾
Am. Radiator com. 110-111	Pressed Stl. pf. -102
Am. Stl. Fdr. com. 45-46¼	Ry. Stl. Spg. com. 97½-99¾
Am. Stl. Fdr. pf. 92-92¾	Ry. Stl. Spg. pf. -105½
Bald. Loco. com. 117-126¼	Replough Steel.... 41½-43
Bald. Loco. pf. 99-100	Republic com. 92½-97½
Beth. Stl. com. 86½-88	Sloss com. 72-76¾
Beth. Stl. 8 per cent. pf. 112¼-113	Sloss pf. -91
Beth. Stl. Class B. 89¾-94¼	Superior Steel.... 46½-48
Chic. Pneu. Tool. 88-94	Transue-Williams. 58½-60
Colo. Fuel..... 38½-41	Un. Alloy Steel... 44½-45½
Cruc. Steel com. 222¼-255	U. S. Pipe com. 17½-19
Cruc. Steel pf. 98-98¾	U. S. Pipe pf. 47½-48
Gen. Electric.... 166-168¼	U. S. Steel com. 98½-101¼
Gt. No. Ore Cert. 38¼-40½	U. S. Steel pf. 112¾-113¾
Gulf Steel..... 66½-70	Vanadium Steel... 48¼-60
Int. Har. com. 125-130	Va. I. C. & Coke... 89½-88¼
Int. Har. pf. 111-111½	Westingh. Elec. 52-53¾

Dividends

The American International Corporation, quarterly, 1½ per cent on the common and preferred, payable March 31.
 The Cambria Steel Co., quarterly, 1½ per cent and extra ½ per cent, payable March 15.
 The Crucible Steel Co. of America, quarterly, 1½ per cent on the preferred, payable March 31.
 The Dominion Iron & Steel Co., quarterly, 1½ per cent on the preferred, payable April 1.
 The Dominion Steel Corporation, quarterly, 1½ per cent, payable April 1.
 The Harbison-Walker Refractories Co., quarterly, 1½ per cent on the common, payable March 2, and 1½ per cent on the preferred, payable April 20.
 The National Enameling & Stamping Co., quarterly, 1½ per cent on the common, payable March 20, and 1½ per cent on the preferred, payable March 31.
 The New York Air Brake Co., quarterly, 2½ per cent, payable March 24.
 The Republic Iron & Steel Co., quarterly, 1½ per cent on the common, payable May 1, and 1½ per cent on the preferred, payable April 1.

The Allis-Chalmers Mfg. Co., quarterly, 1½ per cent on the preferred, payable April 15.
 The American Car & Foundry Co., quarterly, 3 per cent on the common and 1½ per cent on the preferred, payable April 1.
 The American Steel Foundries, quarterly, 75c. on the common, payable April 15, and 1½ per cent on the preferred, payable March 31.
 The Canadian Car & Foundry Co., quarterly, 1½ per cent on the preferred, payable April 10.
 The J. I. Case Threshing Machine Co., quarterly, 1½ per cent on the preferred, payable April 1.
 The J. I. Case Plow Works, quarterly, 1½ per cent on the first and second preferred, payable March 31.
 The General Electric Co., quarterly, 2 per cent, payable April 15.
 The American Can Co., quarterly, 1½ per cent on the preferred, payable April 1.
 The American Locomotive Co., quarterly, 1½ per cent on the common and 1½ per cent on the preferred, payable March 31.
 The Gulf States Steel Co., quarterly, 1½ per cent on the first preferred and 1½ per cent on the second preferred, payable April 1.
 The Lackawanna Steel Co., 1½ per cent, payable March 31.
 The Railway Steel Spring Co., quarterly, 2 per cent on the common, payable March 31 and 1½ per cent on the preferred, payable March 20.
 The Worthington Pump & Machinery Corporation, quarterly, 1½ per cent on preferred A and 1½ per cent on preferred B, payable April 1; quarterly, 1½ per cent on the common, payable April 15.
 The Yale & Towne Mfg. Co., quarterly, 5 per cent, payable April 1.
 The American Brake Shoe & Foundry Co., quarterly, 1½ per cent on the common and 3 per cent on the preferred, payable March 31.
 The Canadian Crocker-Wheeler Co., quarterly 1½ per cent on the preferred, payable March 31.
 The International Harvester Co., quarterly, 1½ per cent on the common, payable April 15.
 The Otis Elevator Co., quarterly, 2 per cent on the common and 1½ per cent on the preferred, payable April 15.
 The Otis Steel Co., quarterly, 1½ per cent on the preferred, payable April 1.
 The Sloss-Sheffield Steel & Iron Co., quarterly, 1½ per cent on the preferred, payable April 1.
 The T. H. Symington Co., quarterly, 2½ per cent on the common, payable April 15, and 2 per cent on the preferred, payable April 1.
 The Transue & Williams Steel Forging Co., quarterly, \$1.25, payable April 15.

Steel Corporation Orders Again Increase

Unfilled orders on the books of the United States Steel Corporation, Feb. 28, were 9,502,081 tons; compared with 9,285,441 tons on Jan. 31. This is an increase of 216,640 tons against one of 1,020,075 tons in January and against an increase for December of 1,137,036 tons. The increase last month is the ninth consecutive one. The unfilled orders a year ago were 6,010,787 tons, or 3,491,294 tons less. The table below gives the unfilled tonnage for the Steel Corporation at the close of each month beginning with January, 1917:

	1920	1919	1918	1917
January	9,285,441	6,684,268	9,477,853	11,474,054
February	9,502,081	6,010,787	9,288,453	11,576,697
March	5,430,572	9,056,404	11,711,644
April	4,800,685	8,741,882	12,183,083
May	4,282,310	8,337,623	11,886,591
June	4,892,855	8,918,866	11,383,287
July	5,578,661	8,883,801	10,844,164
August	6,109,103	8,759,042	10,407,049
September	6,248,638	8,297,905	9,833,477
October	6,472,668	8,353,293	9,009,675
November	7,128,330	8,124,663	8,897,106
December	8,265,366	7,379,152	9,381,718

The largest total of unfilled orders was on April 30, 1917, when it was 12,183,083 tons; the lowest was on Dec. 31, 1910, when the total was 2,605,747 tons.

Material and equipment used in the construction of the dry dock, South Boston, are being sold by negotiation by a Boston pig iron and old material interest. During the past week, a Southern iron producer bought of this equipment two switching locomotives, two Brown hoists with boilers, and one Plymouth gas engine, four cylinders, for hauling. A mining company bought 200 tons of rails at \$28 f.o.b. dock, South Boston, and a structural company a smaller tonnage at the same price. A New England foundry took approximately three tons of copper wire at 19c. f.o.b. shipping point.

Non-Ferrous Metals

The Week's Prices

Cents Per Pound for Early Delivery							
March	Copper		Tin.	Lead		Zinc	
	New York	Electro-lytic		New York	St. Louis	New York	St. Louis
10	18.37 1/2	18.37 1/2	63.50	9.37 1/2	9.00	8.90	8.55
11	18.37 1/2	18.37 1/2	63.75	9.37 1/2	9.00	9.15	8.80
12	18.25	18.25	63.25	9.37 1/2	9.00	8.95	8.65
13	18.25	18.25	...	9.37 1/2	9.00	9.10	8.75
15	18.25	18.25	62.50	9.37 1/2	9.00	9.10	8.75
16	18.37 1/2	18.25	62.25	9.37 1/2	9.00	8.85	8.50

NEW YORK, March 16.

The markets are all quiet and in most cases prices are softer. Demand for copper continues very light, and prices are at lower levels. Consumers of tin are not buyers and values are governed by speculative dealings almost entirely. The lead market is quiet and slightly easier. Values for zinc are highly erratic and demand is light. Antimony is quiet and lower.

New York

Copper.—The market continues exceedingly dull, with very little interest on the part of either domestic or foreign buyers. Electrolytic copper for early delivery is obtainable from first or second hands at around 18.25c. to 18.37 1/2c., New York, and it is possible that an attractive offer would bring out even a lower price. Lake copper is also inactive and similar conditions obtain. There continues, however, to be a firm belief that consumers must enter the market in the near future for May-June requirements, as well as for third quarter, and a buying movement is regarded as highly probable soon both from domestic and foreign sources.

Tin.—There has been very little change in general conditions. Consumers are still disinclined to place orders and the market is almost entirely governed by transactions of a speculative nature between traders and dealers. As a whole the market is flat and stale. Prices for spot tin vary erratically from day to day, influenced by the speculative trading here and in London. Spot Straits tin to-day is quoted at 62.25c., New York, which is a considerable recession from the higher levels of the week, due to a fall in the London market to-day of £11 10s. to £372 per ton. The cost of future shipments is around 1c. above that for spot delivery, and this has been the general rule throughout the week. There is evidence that supplies of spot tin are becoming more concentrated and that the cheap sellers are being eliminated. Arrivals thus far this month have been 870 tons and the quantity afloat is reported as 5120 tons. As soon as consumers actually enter the market it is probable the speculative phase will be largely eliminated.

Lead.—This market is quiet and dull, and barely steady. Many of the producers are still confronted with the difficulty of furnishing enough lead to ship on contract, while some of the others face easier conditions. Lead for prompt shipment from the West has been offered to-day at 9.37 1/2c., New York, which we quote as the market. Larger amounts are being offered for April shipment and still more for May. There is now definite evidence that an increased production is in view. It is also a fact that more lead which is in transit is now being offered and that some consumers are ready to part with resale lots. The market in London is also receding, having been lower by £2 per ton to-day from yesterday's quotations and from £5 5s. to £6 per ton lower on spot and future metal than the values a week ago.

Zinc.—Quotations have been highly erratic, being up one day and down the next, due to variations in the London market. Changes in quotations have also been exceedingly variable even during market operations of a single day. During the recessions to the lower levels about a week ago there was considerable buying on the

part of some domestic consumers as well as exporters, but since then less interest has been shown. To-day prime Western for delivery to the end of the second quarter has been offered as low as 8.50c., St. Louis, and 8.85c., New York, which we quote as the market. Sales have been made as high as 8.60c. to 8.62 1/2c., St. Louis, in sizeable quantities.

Antimony.—Demand has fallen off which, together with the offerings of resale lots, has caused the market to recede until wholesale lots for early delivery are obtainable as low as 11c., New York, duty paid.

Aluminum.—Conditions are unchanged and virgin metal, 98 to 99 per cent pure, is quoted at 31c. to 33c., New York, for early delivery in wholesale lots, depending on whether by outside sellers or the leading interest.

Old Metals.—Business is very quiet and prices show little change, except lead, which is higher. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	19.00
Copper, heavy and wire.....	18.00
Copper, light and bottoms.....	16.25
Brass, heavy.....	14.00
Brass, light.....	10.00
Heavy machine composition.....	18.25
No. 1 yellow rod brass turnings.....	11.50
No. 1 red brass or composition turnings.....	16.00
Lead, heavy.....	8.50
Lead, tea.....	6.50
Zinc.....	6.50

Chicago

March 16.—Copper is slow except for the movement of small lots for spot shipment. Tin has been highly speculative for some weeks, and is unstable. For the moment it is slightly weaker than a week ago, evidently reflecting a decline in the London market. Considerable tonnage awaits further recessions in price. Lead is quiet and firm. Spelter is weaker than the other metals and consumers expect further declines. There have been large sales of antimony of late, but prices have not advanced in conformity with the increased demand. Old metals are unchanged. We quote Lake copper 19.25c. for carloads, tin 62c. to 63c., lead 9.10c. to 9.25c., spelter 8.70c., and antimony 12.50c. On old metals we quote copper wires, crucible shapes, 15.50c.; copper clips, 15.25c.; copper bottoms, 14c.; red brass, 15.50c.; yellow brass, 11.25c.; lead pipe, 7c.; zinc, 6.25c.; pewter, No. 1, 37.50c.; tinfoil, 40c., and block tin, 50c., all these being buying prices for less than carload lots.

St. Louis

March 15.—The non-ferrous markets have been active and strong, with lead, car lots, selling at 9.12 1/2c., and spelter at 9c. In less than car lots the figures are: Lead, 9.50c.; spelter, 9.75c.; tin, 68.50c.; copper, 20.50c.; antimony, 13.50c. In the Joplin district ores have been well held, with zinc blende at about \$52.50 top grade, basis 60 per cent. Calamine has been held at \$40, top grades, basis 40 per cent. Lead is firm at \$105, basis 80 per cent. On miscellaneous scrap metals we quote dealers' buying prices as follows: Light brass, 9c.; heavy yellow brass, 10.50c.; heavy red brass, 15c.; heavy copper and copper wire, 16c.; light copper, 13c.; pewter, 35c.; tinfoil, 43c.; zinc, 5c.; lead, 6c.; tea lead, 3c.; aluminum, 24c.

Some idea of the increase in the business of the General Motors corporation can be obtained from the fact that the combined factory units turned out 467,000 cars of all kinds in 1919 and are now working on a production schedule for 1920 that calls for 612,000. In the first five weeks of the current year the output of passenger cars, tractors and motor trucks was around 49,000, compared with about 23,000 for the corresponding period a year ago.

The Champion Blower & Forge Co., Lancaster, Pa., in order to increase its production, will erect a new foundry, and has awarded the contract for a one-story 60 x 140-ft. foundry to John S. Frube, contractor, of Lancaster.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

Freight rates from Pittsburgh on finished iron and steel products, including wrought iron and steel pipe, with revisions effective Jan. 1, 1920, in carloads, to points named, per 100 lb., are as follows: New York, 27c.; Philadelphia, 25c.; Boston, 29½c.; Buffalo, 21c.; Cleveland, 17c.; Cincinnati, 23c.; Indianapolis, 25c.; Chicago, 27c.; St. Louis, 34c.; Kansas City, 59c.; St. Paul, 49½c.; Denver, 99c.; Omaha, 59c.; minimum carload 80,000 lb. to four last named points; New Orleans, 38.5c.; Birmingham, 57.5c.; Pacific Coast, \$1.25; minimum carload 80,000 lb. To the Pacific Coast the rate on steel bars and structural steel is \$1.315, minimum carload 40,000 lb.; and \$1.25, minimum carload 50,000 lb. On wrought iron and steel pipe the rate from Pittsburgh to Kansas City is 50c. per 100 lb., minimum carload 46,000 lb.; to Omaha, 50c., minimum carload 46,000 lb.; St. Paul and Minneapolis, 49.5c.; minimum carload 46,000 lb.; Denver, 99c.; minimum carload, 46,000 lb. Jacksonville, Fla., all rail, car lots, 41.5c.; less, 59c.; rail and water, car lots, 34.5c.; less, 46.5c. A 3 per cent transportation tax applies. On iron and steel items not noted above rates vary somewhat and are given in detail in the regular railroad tariffs.

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in., on one or both legs, ¼ in. thick and over, and zebs, structural size, 2.45c. to 4c.

Wire Products

Wire nails, \$3.25 to \$4.00 base per keg; galvanized, 1 in. and longer, including large-head barbed roofing nails, taking an advance over this price of \$1.50, and shorter than 1 in., \$2.00. Bright basic wire, \$3 to \$3.50 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$3 to \$3.50; galvanized wire, \$3.70 to \$3.95; galvanized barbed wire and fence staples, \$4.10 to \$4.45; painted barbed wire, \$3.40 to \$3.75; polished fence staples, \$3.40 to \$4.50; cement-coated nails, per count keg, \$2.85 to \$3.75; these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 60 per cent off list for carload lots, 59 per cent for 1000-rod lots, and 58 per cent off for small lots, f.o.b. Pittsburgh.

Bolts, Nuts and Rivets

Large structural and ship rivets, \$4.50 base
Large boiler rivets, \$4.60 base
Small rivets, .50 per cent off list
Small machine bolts, rolled threads, 40, 10 and 5 per cent off list
Same sizes in cut threads, 40 and 5 per cent off list
Longer and larger sizes of machine bolts, 30 and 10 per cent off list
Carriage bolts, ¾ in. x 6 in.:
Smaller and shorter, rolled threads, 40 and 5 per cent off list
Cut threads, 30 and 10 per cent off list
Longer and larger sizes, 30 per cent off list
Lag bolts, .50 per cent off list
Plow bolts, Nos. 1, 2 and 3 head, 40 per cent off list
Other style heads, 20 per cent extra
Machine bolts, c.p.c. and t. nuts, ¾ in. x 4 in.:
Smaller and shorter, 35 per cent off list
Longer and larger sizes, 25 per cent off list
Hot pressed and cold pressed sq. or hex. blank nuts, 2c. off list
Tapped nuts, \$1.75 off list
Semi-finished hex. nuts, U. S. S. and S. A. E.:
¾-in. and larger, .60 and 5 per cent off list
9/16-in. and smaller, .70 and 5 per cent off list
9/16-in. and smaller A. L. A. M. or S. A. E., .70, 10 and 5 per cent off list
Stove bolts in packages, .70 and 10 per cent off list
Stove bolts in bulk, .70, 10 and 2½ per cent off list
Tire bolts, .55 and 10 per cent off list
Track bolts, .6c. base
One cent per lb. extra for less than 200 kegs. Rivets in 100-lb. kegs 25c. extra.
All prices carry standard extras f.o.b. Pittsburgh.

Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers, \$52 to \$70; chain rods, \$75 to \$80; screw rivet and bolt rods and other rods of that character, \$65 to \$70. Prices on high carbon rods are irregular. They range from \$75 to \$100, depending on carbons.

Railroad Spikes and Track Bolts

Railroad spikes, ½ to 9/16 in. and larger, \$4.00 per 100 lb. in lots of 200 kegs, of 200 lb. each or more; spikes, ¾-in. and 7/16-in., \$4.25; 5/16-in., \$5; track bolts, \$4.90 to \$5. Boat and barge spikes, \$4.50 per 100 lb. in carload lots of 200 kegs or more, f.o.b. Pittsburgh. Tie plates, \$3 to \$4 per 100 lb.

Terne Plates

Prices of terne plates are as follows: 8-lb. coating, 200 lb., \$13.80 per package; 8-lb. coating, I. C., \$14.10; 12-lb. coating, I. C., \$15.80; 15-lb. coating, I. C., \$16.80; 20-lb. coating, I. C., \$18.05; 25-lb. coating, I. C., \$19.30; 30-lb. coating, I. C., \$20.30; 35-lb. coating, I. C., \$21.30; 40-lb. coating, I. C., \$22.30 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 2.35c. to 4.00c. from mill. Common bar iron, 4.50c.

Wrought Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card, discounts on steel pipe, applying as from Jan. 14, 1920, and on iron pipe from Jan. 7, 1920:

Steel			Iron		
Inches	Black Galv.		Inches	Black Galv.	
1/4, 1/2 and 3/4	47	20 1/2	1/4 and 1/2	1	+25
1/2	51	36 1/2	3/4	25 1/2	+1 1/2
3/4 to 3	54	41 1/2	1	29 1/2	11 1/2
			3/4 to 1 1/2	34 1/2	18 1/2
			2 and 2 1/2	33 1/2	17 1/2
Lap Weld			Lap Weld		
2	47	34 1/2	1 1/4	24 1/2	9 1/2
2 1/2 to 6	50	37 1/2	1 1/2	31 1/2	17 1/2
7 to 12	47	33 1/2	2	28 1/2	14 1/2
13 and 14	37 1/2		2 1/2 to 6	30 1/2	17 1/2
15	35		7 to 12	27 1/2	14 1/2
Butt Weld, extra strong, plain ends			Butt Weld, extra strong, plain ends		
1/4, 1/2 and 3/4	43	25 1/2	1/4	+7	+40
1/2	48	35 1/2	3/4	23 1/2	6 1/2
3/4 to 1 1/2	52	39 1/2	1	28 1/2	15 1/2
2 to 3	53	40 1/2	3/4 to 1 1/2	34 1/2	19 1/2
			2 and 2 1/2	34 1/2	19 1/2
Lap Weld, extra strong, plain ends			Lap Weld, extra strong, plain ends		
2	45	33 1/2	1 1/4	21 1/2	6 1/2
2 1/2 to 4	48	36 1/2	1 1/2	27 1/2	13 1/2
4 1/2 to 6	47	35 1/2	2	29 1/2	16 1/2
7 to 8	43	29 1/2	2 1/2 to 4	31 1/2	19 1/2
9 to 12	38	24 1/2	4 1/2 to 6	30 1/2	18 1/2
			7 to 8	22 1/2	10 1/2
			9 to 12	17 1/2	5 1/2

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variations in weight of 5 per cent.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers have been seven (7) points lower (higher price) than carload lots and on butt and lap weld galvanized iron pipes have been nine (9) points lower (higher price).

Boiler Tubes

The following are the prices for carload lots f.o.b. Pittsburgh:

Lap Welded Steel		Charcoal Iron	
3 1/2 to 4 1/2 in.	40 1/2	1 1/2 and 1 3/4 in.	+20
2 1/2 to 3 1/2 in.	30 1/2	2 and 2 1/2 in.	+10
2 1/2 in.	24	2 1/2 and 2 3/4 in.	+1
1 1/2 to 2 in.	19 1/2	3 and 3 1/2 in.	-1 1/2
		3 1/2, 4 and 4 1/2 in.	-8
Standard Commercial Seamless—Cold Drawn or Hot Rolled		Standard Commercial Seamless—Cold Drawn or Hot Rolled	
Per Net Ton		Per Net Ton	
1 in.	\$327	1 1/2 in.	\$207
1 1/4 in.	267	2 to 2 1/2 in.	177
1 3/4 in.	257	2 1/2 to 3 1/4 in.	167
1 1/2 in.	207	4 in.	187
		4 1/2 to 5 in.	207

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department, which will be subject to special negotiations.

Sheets

Prices of the Steel Corporation for mill shipments on sheets of United States standard gage in carloads and larger lots for indefinite delivery are given in the left-hand column. For reasonably prompt delivery, mills have no trouble in getting prices quoted in the right-hand column, or even higher prices.

Blue Annealed—Bessemer

	Cents Per Lb.
No. 8 and heavier	3.50 to 5.95
Nos. 9 and 10 (base)	3.55 to 6.00
Nos. 11 and 12	3.60 to 6.05
Nos. 13 and 14	3.65 to 6.10
Nos. 15 and 16	3.75 to 6.20

Box Annealed, One Pass Cold Rolled—Bessemer

	Cents Per Lb.
Nos. 17 to 21	4.15 to 6.30
Nos. 22 to 24	4.20 to 6.35
Nos. 25 to 26	4.25 to 6.40
No. 27	4.30 to 6.45
No. 28 (base)	4.35 to 6.50
No. 29	4.45 to 6.60
No. 30	4.55 to 6.70

Galvanized Black Sheet Gage—Bessemer

	Cents Per Lb.
Nos. 10 and 11	4.70 to 7.50
Nos. 12 to 14	4.80 to 7.60
Nos. 15 and 16	4.95 to 7.75
Nos. 17 to 21	5.10 to 7.90
Nos. 22 to 24	5.25 to 8.05
Nos. 25 and 26	5.40 to 8.20
No. 27	5.55 to 8.35
No. 28 (base)	5.70 to 8.50
No. 29	5.95 to 8.75
No. 30	6.20 to 9.00

Tin Mill Black Plate—Bessemer

	Cents Per Lb.
Nos. 15 and 16	4.15 to 6.15
Nos. 17 to 21	4.20 to 6.20
Nos. 22 to 24	4.25 to 6.25
Nos. 25 to 27	4.30 to 6.30
No. 28 (base)	4.35 to 6.35
No. 29	4.40 to 6.40
No. 30	4.45 to 6.45
Nos. 30 1/2 and 31	4.45 to 6.45

PERSONAL

Roy F. Soule, for the past eight years editor of *Hardware Age*, has resigned to accept the vice-presidency of A. C. Penn, Inc., New York and Newark, N. J., manufacturer of the Penn safety razor, Wallace lamp and other hardware specialties. During his editorship, *Hardware Age* has steadily gained in influence and Mr. Soule has become recognized as an editor of marked ability and a public speaker of great forcefulness. During the war he rendered conspicuous service in the Liberty loan and other campaigns. On Monday evening last, Mr. Soule's associates in the Iron Age Publishing Co. tendered him a farewell dinner and presented him a watch. He was succeeded March 15 by Llew S. Soule, for a number of years Western editor of *Hardware Age*, with headquarters at Chicago.

Edward E. Hughes, who has been manager of the Franklin Steel Works, Franklin, Pa., for some years, has withdrawn from the active management of that concern and is now located in New York, where he will devote all of his time to other interests. Mr. Hughes, however, will be retained by the Franklin Steel Works in an advisory capacity. C. F. Mackey, who has been assistant general manager under Mr. Hughes, has been made general manager of the company.

Henry P. Blumenauer, sales manager for the Nautaguck works of the Eastern Malleable Iron Co., has resigned to become vice-president and general manager of the Arcade Malleable Iron Co., Worcester, Mass. He received his degree from Cornell University in 1911 and accepted a position with the Standard Oil Co. of New York, going to Calcutta, India, in the interests of that company. Returning to this country he entered the service of the Eastern Malleable Iron Co., where for the past three years he has held the position of sales manager.

M. B. Kelley, president American Steel Co., Pittsburgh, has returned from an extended vacation spent in Cuba, Florida, and other resorts.

Thomas McDonald, consulting manager of the Carnegie Steel Co., Youngstown district, has been elected president of the McDonald Gas, Oil & Drilling Co., capital \$35,000, to operate in the McKeesport, Pa., field.

The following appointments of sales representatives have been made by the Ward Tool & Forging Co., Latrobe, Pa.: W. R. Keene & Co., 90 West Broadway, New York; Edwin-Earle Sales Co., 105 Wood Street, Pittsburgh; J. M. Hamilton & Co., Land Title Building, Philadelphia.

Calvert Townley, assistant to president of the Westinghouse Electric & Mfg. Co., has been re-elected vice-president of the United Engineering Society for the year ending January, 1921.

Three new directors were added to the board of the Sharon Steel Hoop Co., Sharon, Pa., at the annual stockholders' meeting, increasing the board from eight to eleven members. New directors are Trusten P. Draper, general superintendent; J. D. Lyons of the A. M. Byers Co., Pittsburgh, and A. F. Braun of the Farmers Deposit National Bank, Pittsburgh.

John A. Black has severed his connection with the Biehl Iron Works, Inc., Reading, Pa., and Herbert N. Bell has been elected president. The company has added to its staff R. C. Laros, for many years engineer with the Easton Car and Construction Co.

Harry C. Davis, for the past 15 years superintendent of sheet mill plants in Niles, Ohio, has resigned as superintendent of the Thomas and Empire works of the Brier Hill Steel Co. He was originally employed by the old Empire Iron & Steel Co., Niles, later by the Thomas Steel Co., and in 1912 was named superintendent of two plants when they became the property of the Brier Hill Steel Co. These plants have a combined equipment of 20 hot mills.

At the yearly meeting of the Youngstown Steel Car Co., Youngstown, Ohio, these directors were elected:

William Wilkoff, D. J. Wilkoff, L. C. Wilkoff, James A. Campbell, A. E. Adams, U. C. DeFord, R. E. Cornelius, L. B. McKelvey, Porter Pollock and George F. Alderdice. Directors elected William Wilkoff president; D. J. Wilkoff, vice-president, and L. O. Wilkoff, secretary and treasurer. The company is erecting a car building works at Niles, Ohio, which will be ready for production about April 15.

W. E. Jencks, Fiske-Jencks Foundry, Geneva, Ill., has disposed of his interests to other stockholders and has made a connection with a Galesburg foundry. The company will continue to operate under its present name.

Walter Stanberry, Youngstown, Ohio, has succeeded W. W. Marting as superintendent of the Marting Iron & Steel Co., Ironton, Ohio.

At a special meeting of the directors of the Slick-Knox Steel Co. held in its offices in the Chamber of Commerce Building, Pittsburgh, on March 9, E. E. Slick resigned as chairman of the board and the vacancy was not filled. L. L. Knox of Pittsburgh resigned as president and has been succeeded by Josiah Kirby of Cleveland. W. L. Ulmer and W. H. Watkins of Cleveland were added to the directorate. A. R. McGill of Sharon was elected to succeed A. M. Moreland as treasurer. William E. Corcoran was named manager of the plant at Ellwood City, Pa. The Slick-Knox Co. maintains plants at Wheatland and Ellwood City, Pa., which manufacture steel specialties.

Henry Payne, metallurgist at the Sharon, Pa., works of the National Malleable Castings Co., will be transferred April 1 to the Cleveland plant, where he will have charge of research work.

D. J. Flynn, open-hearth superintendent Tacony Steel Co., Tacony, Pa., has been transferred to the New Castle plant of the Penn Seaboard Steel Corporation, with which the Tacony Steel Co. recently merged. Mr. Flynn has had wide experience in the melting of the highest grades of alloy steels.

The Victor Saw Works, Inc., Springfield, Mass., announce the appointment of Edward F. Buie as Pacific Coast representative, to succeed Victor Pezzini, who has resigned to start in business for himself. Mr. Buie was formerly with the Union Hardware & Metal Co., Los Angeles, Cal.

R. E. Griffith recently severed his relations with the American Refractories Co. to become refractories sales manager of E. J. Lavino & Co., with headquarters in Philadelphia.

Frank H. Golding, who has been vice-president and general manager of the Ohio Power Co., Canton, Ohio, has been elected general manager of the Holmes Automobile Co., Canton.

Robert Darnton, general sales manager Page Steel & Wire Co., Adrian, Mich., for the past 10 years, has been appointed manager of the plant, under the new ownership of the American Chain Co. Mr. Darnton will retain his office as general sales manager and Ernest C. Dershem has been appointed assistant general sales manager. George L. Bennett, who retired as general manager on Feb. 20, continues with the company as counsel.

At the annual meeting of the Stanley Works, New Britain, Conn., the following directors were elected: G. P. Hart, E. N. Stanley, E. A. Moore, F. G. Platt, C. F. Bennett, F. S. Chamberlain, A. W. Stanley and Walter H. Hart, the latter to fill the vacancy caused by the death of his father, William H. Hart. Following the naming of the directors they re-elected the following officers: G. P. Hart, chairman of the board; E. A. Moore, president; C. F. Bennett, vice-president; Walter H. Hart, second vice-president; L. W. Young, treasurer; E. W. Christ, secretary; P. F. King, assistant secretary.

Harry Holloway has been appointed to succeed H. C. Davis, resigned, as superintendent of the Empire and Thomas hot mills at Niles, Ohio, of the Brier Hill Steel Co., effective March 15.

Carl Hjelm, formerly of the tool department, Harrington & Richardson Arms Co., Worcester, Mass., is

in charge of production, metal bearing department, Massachusetts Oilless Bearing Co., that city. During the war Mr. Hjelm was in charge of the John Bathe Co. tool room.

Dr. E. M. Parlett, formerly supervisor of sanitation in the relief department of the Baltimore & Ohio Railroad, Baltimore, has become manager of the health and sanitary bureau of the Carnegie Steel Co., with headquarters in Pittsburgh.

W. G. Grommett, correspondence supervisor Norton Co., Worcester, Mass., spoke on the "Personal Element in Letters and How to Make Letters Represent You" before the Advertising Club of Worcester, at the Worcester Automobile Club, March 10.

James A. Campbell, president Youngstown Sheet & Tube Co., has gone to Hot Springs, Ark., for a several weeks' sojourn.

William H. Genske, Milwaukee, has been elected secretary-treasurer of the Davis-Hansen Pump Co., Oshkosh, Wis., manufacturer of pumps and engines. Walter T. Grundy, treasurer, and Robert Wertsch, secretary, resigned March 1 to engage in other business in association with R. A. Phelps, formerly sales manager.

McCord & Co., West Pullman, Ill., announce that E. L. Carter, formerly with the Bucyrus Co., Milwaukee, and the Remington Arms Co., at Eddystone, has become general manager. McCord & Co. manufacture gray iron cylinder castings and steel castings extensively for the automobile trade.

Chauncey Holmes, representative of the Argos Steel Products Corporation, 170 Broadway, New York, recently returned to New York from Japan, where he has been since September, 1919, in the interest of the company.

Herman A. Holz, president Holz & Co., Inc., New York, manufacturer of metallurgical testing and research apparatus, recently left for an extended trip through Europe, in order to study the latest European developments in metal testing methods and in the design of testing equipment.

H. D. Taylor, vice-president in charge of operations of McCord & Co., Chicago, for several years past, will occupy a similar position in the McCord Mfg. Co. In his new office he will have jurisdiction over the McCord and Russel axle plants in Detroit and the McCord & Co. plant in West Pullman, Ill.

At the recent annual meeting of the Sloss-Sheffield Steel & Iron Co. the following new directors were appointed: Hugh Morrow in place of L. Sevier, James N. Jarvie in place of M. C. Branch, and J. P. Davidson to succeed the late J. N. Wallace.

F. K. Vial, chief engineer Griffin Wheel Co., Chicago, gave an illustrated talk on the manufacture of railroad wheels before the Chicago Foundrymen's Club, March 13.

R. R. Seeber, manager P. Q. Lumber Co., Dalhousie, N. B., and formerly manager Winona Copper Co., Winona, Mich., has been elected vice-president and general manager the General Combustion Co., Chicago, effective April 1.

Robert J. Mullaly has been appointed superintendent of the 84-in. and 132-in. plate mills of the Brier Hill Steel Co., Youngstown, Ohio, succeeding W. H. Eshelman, resigned. The change was effective March 15. Mr. Mullaly has been superintendent of the bar mills at McDonald, Trumbull County, Ohio, of the Carnegie Steel Co.

Col. Kenneth Morton, Ordnance Department, has resigned from the Army. Col. Morton was on duty at the Springfield, Mass., armory for about five years, and is well known in the Boston machine tool trade.

F. W. Harbord, of London, who has been in the United States and Canada in the past few weeks in the interest of British stockholders in the Dominion Steel Corporation of Sydney, Nova Scotia, sailed for England this week.

E. P. Thomas, president United States Steel Products Co., has returned to New York from a stay of several weeks in the South following a severe illness.

G. L. Robinson, of the Consolidated Steel Corporation, New York, will leave about April 1 for Shanghai, China, accompanied by Charles E. Masters of the company, to establish an office for the Consolidated in that city.

C. E. Brodhead, formerly in charge of the New York office of the Scranton Bolt & Nut Co., and for the last seven years sales manager of that company at the headquarters at Scranton, Pa., has been made vice-president in charge of sales.

OBITUARY

ROBERT HENRY SMITH, for many years engaged as foundry superintendent at plants in Baltimore and other cities, died March 1 at his home in Baltimore, aged 65 years. He was a native of Port Deposit, Md., where he first engaged in the foundry business. Later he was connected with plants in Chicago, New York, Lebanon, Pa.; Frederick, Md.; Newark, N. J., and elsewhere. For several years he was superintendent of the foundry of the William H. Page Boiler Co., Norwich, Conn. The funeral was held at Port Deposit on March 4. Mr. Smith is survived by his wife and three sons.

TIMOTHY B. WALKER, former superintendent of the Union Iron Works of Buffalo, now the Buffalo Union Furnace Co., died on March 1 in Clinton, N. Y., where he had resided since 1901. He was born in Cincinnati, May 22, 1850, and was graduated from Harvard University in 1871. For a time he lived in Pittsburgh and later in Buffalo. At Clinton he became superintendent of the Franklin Iron Works and continued in that position until the business was abandoned a few years ago. He was a man of marked patriotic instincts.

FRANK F. PHINNEY died at his home in Warren, Mass., March 13. Mr. Phinney was born at Stoughton, Mass., Nov. 25, 1870. He became manager of the Warren Steam Pump Co. in 1902, and soon after became president and general manager, and was actively connected with banks and other business institutions. Mr. Phinney was in poor health for a long time.

FRANK GREENLEAF CROWLEY, president Marine Engineering Co., Boston, died recently at the Massachusetts General Hospital, Boston, where he underwent an operation. He was born in Addison, Me., Sept. 22, 1867, and for many years was a contractor in Boston. About three years ago he helped form the Marine Engineering Co., which repairs ships and vessels.

FRANK O. HARDY, vice-president W. A. Hardy Sons Co., brass manufacturer, Fitchburg, Mass., died March 8, aged 50. Mr. Hardy was mayor of Fitchburg for three terms and previously served two years in the State Legislature.

ANDREW G. PAUL, president Andrew G. Paul Co., Boston, steam heating engineer, died recently at his home in Brighton, Boston, following prolonged illness. Mr. Paul was born in Dover, N. H., Oct. 25, 1849.

JOHN MARION BAKER, 50 years old, died at his home in Baltimore on Feb. 29. He was proprietor of the Acme Saw Works and was well known as a tool expert.

PETER SOMMER, vice-president and founder of the Keystone Steel & Wire Co., Peoria, Ill., died Feb. 16, in his 77th year, at St. Petersburg, Fla.

MORGAN LLEWELLYN, vice-president the Walsh & Weidner Boiler Co., Chattanooga, Tenn., died recently.

The Victor Stove Co., Salem, Ohio, which purchased the factory and business of the Youngstown Furnace Co., Youngstown, Ohio, in the latter part of 1919, has increased its capital from \$40,000 to \$120,000, to provide for necessary additions. Extensive improvements are being made to both its Salem and Youngstown properties. The company has acquired the factory building of the W. J. Clark Co., which discontinued business, and contemplates using it.

MAHONING VALLEY PLANTS

New Enterprises Connected With the Iron and Steel Business—Falcon Company Starts

The Falcon Steel Co., which starts four sheet mills at its Niles, Ohio, plant this week, is the first of four substantial industrial enterprises in the Mahoning Valley identified with the iron and steel industry, to get under way. Others are the Newton Steel Co., Youngstown Pressed Steel Co. and the Youngstown Steel Car Co., whose construction operations and investment aggregate about \$6,000,000. In addition, the Republic Iron & Steel Co. has started extensive additions to the DeForest works at Niles, which with other improvements authorized will aggregate an expenditure of about \$4,000,000, according to John A. Topping, chairman.

The Falcon company plans to start three additional mills within a week, and its jobbing mill unit the latter part of March. The plant is located on a 114-acre site easily accessible to the Erie and Baltimore & Ohio railroads. The main building is a three-way structure, one wing being 50 x 625 ft., another 80 x 650 and the third 70 x 702. There are also buildings to house the annealing and galvanizing departments, powdered coal installation, power house and a shipping building. The company has sufficient acreage to provide for future requirements.

A feature which it is claimed is not general in Valley sheet plants is a water-cooling system which cools floor plates in front of the mills. The plant is entirely electrically driven, such equipment being furnished by the General Electric Co. The United Engineering & Foundry Co. furnished the rolls and other equipment was installed by the Morgan Engineering Co. Dwight P. Robinson & Co., Inc., New York, designed and built the mills.

The company's capital of \$2,500,000 is divided into \$1,000,000 of 7 per cent cumulative preferred and \$1,500,000 common. Officers are Lloyd Booth, president and treasurer; Paul Wick, vice-president, secretary and general manager; W. W. Lewis, general superintendent; George E. Harris, general sales manager; R. H. Grove, chief engineer; C. C. Walker, auditor and E. L. McNamara, purchasing agent. Mr. Booth was formerly treasurer of the Trumbull Steel Co.; Mr. Wick was formerly assistant sales manager of the same company, while Mr. Lewis was superintendent of the old Western Reserve Steel Co., whose plant is now operated by the Brier Hill Steel Co.

The Newton Steel Co.'s Plant

President Edward F. Clark of the Newton Steel Co. announces it is planned to begin production April 1, when eight mills are scheduled to commence rolling. Two more mills will get under way a month later. The product will consist chiefly of deep drawn stock, specially adapted for automobile bodies, fenders, hoods, doors, splash guards, aprons, cowls, crown fenders, metal furniture and the like.

The plant was designed to produce highly finished sheets and has already been expanded from eight to ten mills. Orders have been offered in sufficient volume to occupy capacity for the remainder of the year, but have been accepted for only about four months' production. The mills are located near Newton Falls, Trumbull county, and have adequate water and railroad facilities. President Clark formerly headed the Liberty Steel Co., whose tinplate plant at Leavittsburg was acquired by the Trumbull Steel Co.

Youngstown Pressed Steel Co.

According to the present outlook, initial operations will start about June 1 at the new plant of the Youngstown Pressed Steel Co., which is being erected on a 40-acre site north of Warren, Ohio. W. W. Galbreath, with many years' experience in the pressed steel industry, is president. The company's new plant will be one of the most complete in the country. This concern is closely allied with the Sharon Steel Hoop Co., Sharon, Pa., and is now operating departments at

Haselton, East Youngstown and Sharon, which will be utilized by the Sharon company.

Officials of the Youngstown Steel Car Co. state that car building will likely commence about May 15 at the new works in Niles. The principal output at first will consist of industrial cars, to be followed by steel cars for railroads. Departments will also be devoted to repair work, which will be carried out on an extensive scale. Already heavy orders have been booked and this company, too, enters the field at a most favorable time, when railroads are not only rehabilitating old equipment, but are prefacing a generally anticipated heavy buying movement by substantial scattered orders. The Youngstown Pressed Steel Co. is controlled by interests back of the Wilkoff Co., perhaps the biggest interest in this territory engaged in the wholesale iron and steel scrap and waste metals business. William Wilkoff, president of the Wilkoff Co., is president of the Youngstown Steel Car Co. A small plant has been maintained for several years at Haselton, a part of Youngstown.

Electric Alloy Steel Co. Plant

In addition to the above expansion, the Electric Alloy Steel Co., L. J. Campbell, president, will start construction this spring of a works in Trumbull county to specialize in the production of a superior grade of high speed tool steel and other steels of similar grade. It will also offer its facilities to customers to develop special analysis steels suitable for particular purposes. This plant will be electrically driven, power to be procured from a public service producer. Backers of this enterprise include some of the most successful iron and steel producers in the Mahoning Valley, several of the directors being presidents of large companies.

The newly formed Powell Pressed Steel Co., capital \$225,000, will erect a plant on an 18-acre site near Hubbard, Trumbull county, to turn out pressed and stamped steel specialties.

New England Optimism

While some sections of the country are inclined to take a pessimistic view of the business outlook, New England industries, as a whole, are struggling under the burden of heavy bookings and for that reason are generally optimistic notwithstanding the railroad transportation situation. These industries are making the best of conditions as they exist and somehow getting along. The following letter to the *Boston News Bureau* from the Goodell-Pratt Co., Greenfield, Mass., tool-smiths, is a case in point:

Concerning the situation surrounding the manufacture of mechanical tools, particularly those used by working mechanics, it would be difficult for us to convince a layman, or anyone outside the industry, of the enormous demand that exists at the present time for every kind of a tool that comes under this classification.

The orders are very much larger than at any time during the war period, or at any pre-war period, and while costs have increased and our prices are of necessity considerably higher, the stocks of the merchants the world over are at a very low point and not only must the consumption of the world be supplied, but these stocks must be replenished; and, therefore, this demand will continue for a considerable period. The greatest difficulty is in securing an adequate supply of material.

Certificates of merit are to be conferred by the War Department on many New England industries, as an expression of appreciation for the work turned out during the war. Among the Springfield, Mass., companies to receive such certificates are the Hendee Mfg. Co., Gilbert & Barker Mfg. Co., the Westinghouse Co., Chapman Valve Co., Springfield Aircraft Corporation, the C & P Electric Works and the Wire Goods Co.

The 9000-hp. direct-current reversing blooming mill motor and motor generator set described and illustrated in *THE IRON AGE*, Jan. 22, 1920, in an article, "Rolling Mill of Sharon Steel Hoop Co.," is a product of the Westinghouse Electric & Mfg. Co., Pittsburgh.

FOUNDRY EQUIPMENT TRADE

First Annual Meeting of the New Organization of Manufacturers

Starting with a membership of 12 at its organization meeting at Pittsburgh, Feb. 4, 1919, the Foundry Equipment Manufacturers Association now has 27 members, the list comprising the following important companies:

American Clay Machinery Co., Bucyrus, Ohio.
 American Foundry Equipment Co., New York.
 American Molding Machine Co., Terre Haute, Ind.
 Arcade Mfg. Co., Freeport, Ill.
 Berkshire Mfg. Co., Cleveland.
 Beryk Co., Cleveland.
 Blystone Mfg. Co., Cambridge Springs, Pa.
 Buch Foundry Equipment Co., York, Pa.
 Cleveland-Osborn Mfg. Co., Cleveland.
 Federal Foundry Supply Co., Cleveland.
 Foundry Equipment Co., Cleveland.
 Grimes Molding Machine Co., Detroit.
 Hanna Engineering Works, Chicago.
 H. M. Lane Co., Detroit.
 McLain's System, Milwaukee, Wis.
 National Engineering Co., Chicago.
 S. Obermayer Co., Chicago.
 Pangborn Corporation, Hagerstown, Md.
 J. W. Paxson Co., Philadelphia.
 Henry E. Pridmore Co., Chicago.
 P. H. & F. M. Roots Co., Connersville, Ind.
 U. S. Molding Machine Co., Cleveland.
 Wadsworth Core Machine & Equipment Co., Akron, O.
 Whiting Foundry Equipment Co., Harvey, Ill.
 T. B. Wood Sons Co., Chambersburg, Pa.
 E. J. Woodison Co., Detroit, Mich.
 Young Bros. Co., Detroit, Mich.

The first annual meeting of the association was held at the Hotel Astor, New York, March 10 and 11, 1920. There were business sessions on both days and a dinner Wednesday evening, at which the president, V. E. Minnich, of the American Foundry Equipment Co., New York, presented his report for the year. An address was made by Dr. Herbert Adams Gibbons, the well-known writer on world questions, particularly on the great war and all that has grown out of it. There were remarks also by A. O. Backert, secretary and treasurer of the association, and by A. I. Findley, editor of THE IRON AGE.

In his report President Minnich went back to the real beginnings of the association, in the effort on the part of the foundry equipment manufacturers to aid

the Government during the war. A war service committee was organized and acted until the latter part of 1918. It participated in the reconstruction convention of the war service committees of the Chamber of Commerce of the United States held at Atlantic City in December of that year.

The first matter of importance taken up by the association in 1919 was the organization of those of its members who desired to combine under the Webb act to export their products to the markets of the world. The Foundry Equipment Export Corporation was formed, composed of the following members: American Foundry Equipment Co., American Molding Machine Co., Arcade Mfg. Co., Buch Foundry Equipment Co., Grimes Molding Machine Co., National Engineering Works, S. Obermayer Co., J. W. Paxson Co., Whiting Foundry Equipment Co., Wonham, Bates & Goode, E. J. Woodison Co., Rich Foundry Equipment Co. The new corporation is now about ready to enter the foreign field. An export meeting was held by the members of the corporation at the Hotel Astor last week.

Another activity of the Foundry Equipment Manufacturers Association reported on by President Minnich was the formation of groups in the membership, bringing together those making like products, as molding machines, cleaning room equipment, etc. There has also been established a credit exchange which clears through the secretary's office. This is expected to prove helpful in weeding out undesirable accounts. The members are now reporting to the secretary the total volume of business closed each month, shipments during the month and unfilled orders on the last day of the month. A very considerable increase in the volume of business has been noted since the association was formed. The association has also discussed labor conditions, hours, wages, bonus or premium plans, and salesmen's and erectors' compensation. The association's publicity committee, of which Franklin G. Smith is chairman, has done excellent work in issuing bulletins to foundry department heads dealing with the care and upkeep of their foundry equipment.

The following officers were elected at the closing session of the meeting held Thursday morning, March 11; V. E. Minnich, American Foundry Equipment Co., New York, president; Franklin G. Smith, Cleveland-Osborn Mfg. Co., Cleveland, vice-president; A. O. Backert, Penton Publishing Co., Cleveland, secretary and treasurer; T. W. Pangborn, Pangborn Corporation, Hagerstown, Md., director for a three-year period.

Would Turn Corporation Surpluses Into the U. S. Treasury

WASHINGTON, March 16.—A resolution which is evidently the handiwork of Henry B. Martin, an old-time foe of the United States Steel Corporation, has been introduced in the House by Representative Little of Kansas. The resolution is aimed at corporations having large surpluses to which attention has been drawn by the recent decision of the Supreme Court holding that stock dividends are not taxable as income.

The resolution directs the Attorney General to begin injunction proceedings against the United States Steel Corporation, the Standard Oil Co. and various other steel, iron, coal, railroad and banking corporations to restrain them from taking any steps either by stock dividends or other devices, to distribute surplus war profits accumulated during the past six years. It further directs the Ways and Means Committee of the House to prepare to report to the House a bill providing for taxing into the Treasury of the United States all the surplus war profits of the aforesaid corporations, and of all other corporations and companies similarly situated. The revenue thus derived is to be used, under the terms of the resolution, for bonuses for private soldiers and sailors.

Representative Little introduced the resolution for the Private Soldiers' and Sailors' Legion. Testimony before the Ways and Means Committee recently showed that Henry B. Martin, who for many years figured as secretary for the so-called Anti-Trust

League, is an advisor of the officers of the Private Soldiers' and Sailors' Legion in the matter of legislation. Mr. Martin himself took the witness stand and had no hesitancy in admitting that this was the situation. Mr. Martin is under sentence to serve a year in jail on the charge of inciting strikes in munitions plants in 1915. He was convicted with a number of others who were accused of activities in this direction before the United States got into the war. His case is now pending on appeal to the Supreme Court. Mr. Martin told the Ways and Means Committee last week that he furnished the evidence to the Department of Justice on which the Steel Corporation case, recently decided by the Supreme Court, was instituted.

Large Increase in Fabricating Plant Business

New structural contracts taken by the bridge and fabricating plants of the country in February amounted to 171,000 gross tons of material or 95 per cent of their monthly capacity, according to the records of the Bridge Builders' and Structural Society, 50 Church Street, New York, compiled by its secretary, George E. Gifford. This is the largest tonnage recorded since March, 1916, when 102 per cent was contracted for, and is largely in excess of that for January of 75 per cent, for February, 1919, of 12½ per cent, or for the February average for the preceding eight years, of 53 per cent.

The Boston District Salvage Board, 19 Portland Street, offers for sale by negotiation 302,671 lb. scrap.

SHIPPED BY EXPRESS

Unusual Methods Adopted by Steel Manufacturers in the Mahoning Valley

YOUNGSTOWN, OHIO, March 16.—Large quantities of steel are being shipped from Mahoning Valley mills in express car lots, because of lack of railroad cars and insistence of customers for material. Buyers in territory within a 70-mile radius are sending motor trucks to haul finished and semi-finished steel to their plants. At the end of last week, over 100,000 tons of finished product awaited shipment in mill yards. On March 13 only 130 cars of coal for industrial consumption were available in the Valley, against normal requirement of 750 cars daily. The Youngstown Sheet & Tube Co. is operating four of six blast furnaces, one at Hubbard, Trumbull county, being banked, and No. 3 in the East Youngstown group being down for overhauling and relining. This work is practically completed, however, and the furnace will resume as soon as it is dried, if the coke supply warrants.

For the third successive week-end, the Brown-Bonell finishing department of the Republic Iron & Steel Co. suspended last week, and officials announced it would not resume the first of the week, as heretofore. The management is concentrating its energies to keep the Bessemer department, open-hearth plant and tube mills operating. By-product coke oven production is substantially curtailed.

The Youngstown Sheet & Tube Co. continues to curtail. The 18-in. bar mill, No. 2 blooming mill, puddle mill, seven sheet mills, No. 1 and No. 2 skelp mills and the wire mill started the week. Increase in unfilled tonnage of finished products is causing the Brier Hill Steel Co. anxiety. Last week its Empire plant at Niles, consisting of eight sheet mills, was down. Both the Carnegie Steel Co. and Sharon Steel Hoop Co. are maintaining operations well above the average.

Large Tonnages Piled

At the end of the week the Carnegie Steel Co. had nearly 17,000 tons of steel piled, ready for shipment. To clear up accumulation of steel in the district railroad authorities estimate at least 2000 cars will be needed. The Trumbull Steel Co. had, last week, 12,700 tons of steel plate boxed and ready to be shipped, but immovable for lack of cars. At its rod and wire mills, Struthers, the Youngstown Sheet & Tube Co. had 4000 tons of finished product, for which no cars were available. The Valley Mould & Iron Co. reported to railroad traffic agents that 30,000 tons of pig iron were piled

on bank at its Sharpsville, Pa., furnace. A company manufacturing steel containers is estimated to have nearly 100 carloads of finished material in its warehouses.

It is expected lifting of the embargo by Eastern carriers on shipments of pig iron will result in a considerable outbound movement from the Mahoning and Shenango Valleys, with better car supply. The original embargo on eastbound iron and steel shipments was confined to freight in box cars, but this was later strengthened by restrictions on the movement of much coarse freight in open top cars.

Because it is almost impossible to get structural steel deliveries from the mills under six months, the newly formed Powell Pressed Steel Co., which is building a plant at Hubbard, Trumbull county, has purchased a steel factory building in the East. It will be dismantled and removed to the company's location.

Falcon Steel Co., at Niles, which recently started its sheet plant, is gradually increasing production to a satisfactory standpoint.

The Sharon, Pa., works of the American Steel Foundries will resume early in April. About 600 men are employed when the plant is running normally.

The slag crushing plant built by the Struthers Furnace Co., Cleveland, in connection with its 500-ton smelter at Struthers, Mahoning county, has been given initial trial operation. It has a rated capacity of 450 tons of slag every 24 hours.

High Sheet Prices

Sales of cold-rolled black sheets have been made in small lots at 10c., and it is predicted the price of 8c. will prevail within a short time because of the firmness of sheet bar prices and scarcity of the semi-finished product. Producers of sheet bars anticipate prices will advance beyond \$100 shortly, there being no letup in demand. Operation of new sheet mills has accentuated the shortage of sheet bars, as bar mill expansion has not kept pace with sheet mill construction in recent years.

Two new bar mills are now being installed at the McDonald works of the Carnegie Steel Co., to roll miscellaneous product.

Price of black sheets has been advanced by a leading maker to 9c. Because of intermittent rollings and consequent lessened production makers are still rejecting proffers of new business, their schedules being occupied with old orders for established customers.

Operations of the two leading iron and steel producers in the district are characterized at 50 per cent of capacity, with little hope of improvement until the car supply is materially bettered.

Mr. Payne's View on Shipping

WASHINGTON, March 16.—On the eve of his retirement as chairman of the Shipping Board, John Barton Payne, who soon will take office as Secretary of the Interior, has given his views on merchant marine legislation to the Senate Commerce Committee. Mr. Payne advocated the retirement of the Government from the shipping business at the earliest possible moment. Mr. Payne also urged the enactment of legislation making it unlawful to sell American vessels to foreigners without permission of the Shipping Board, and legislation to give the Shipping Board control of the docks in New York formerly owned by German companies. He favored such measures as would make ship operation by American citizens or firms profitable.

Taken Over by the National Steel Fabric Co.

Some time ago the National Steel Fabric Co., First National Bank Building, Pittsburgh, took over the highway materials business of the H. H. Robertson Co. The entire organization of the Robertson highway department is now a part of the National Steel Fabric Co., and the business has been continued by the latter concern without interruption. Officers of the company are as follows: H. E. Marks, president; E. L. Benedict, vice-president and manager of sales; R. L. Glose,

secretary and treasurer. The company maintains its own offices in room 502 Pennsylvania Building, Philadelphia, in charge of H. D. Beaton, while its Chicago office is in the Tacoma Building, and is in charge of C. B. Dugan. Stocks of its products are carried and sold by distributors in a number of cities. Its business is the sale of welded wire fabric for concrete road construction and steel curb bars for concrete curbs.

Steel for Sheet Mill

The Massillon Rolling Mill Co., Massillon, Ohio, has placed a contract with the Belmont Iron Works Co., Philadelphia, for 1200 tons of steel for its new sheet mill building. The concern expects to increase its output of sheets about 50 per cent. The first extension to be built will consist of an annealing building, 60 x 540 ft., and a hot mill building, 70 x 780 ft.

At the March meeting of Watertown Arsenal Forman's Association, held in the Board of Trade Building, Cambridge, Mass., T. E. Austin, assistant works manager, crane department, the Niles-Bement-Pond Co., Philadelphia, delivered an illustrated address on cranes. Many of the illustrations disclosed improvements made at various plants during the war, which were especially interesting.

Two New Chapters of the American Steel Treaters Society

Last week two more new local chapters of the American Steel Treaters Society were established, making 17 in all. The first of these is known as the New Haven Chapter, with headquarters at New Haven, Conn. The first meeting was held at the New Haven Chamber of Commerce on Tuesday evening, March 9, at which there was a large attendance, including metallurgists and other steel men from Waterbury, New Britain, Meriden and Wallingford, Conn. The chairman of the New Haven Chapter is William Gibson, experimental department Marlin-Rockwell Corporation; vice-chairman, William Kent Shepard, assistant professor Yale University; secretary-treasurer, Clayton L. Phillips, engineering department Sargent & Co., all of New Haven. The executive committee consists of J. A. Hutchinson, engineer International Silver Co., Meriden; J. T. Malacrida, foreman West Haven Mfg. Co., West Haven; R. J. Marsh, department superintendent R. Wallace & Sons Mfg. Co., Wallingford; W. B. Runk, equipment engineer Robt. M. Bassett Co., Derby, and Rupert L. Penny, cutlery engineer Winchester Repeating Arms Co., New Haven.

The other new chapter is known as the Bridgeport Chapter, which was formed at a meeting held at Hotel Stratfield, Bridgeport, Thursday evening, March 11. There was an attendance of about 125, of which 75 per cent became charter members. The officers of this new chapter are as follows: Chairman, Keith Reeves Rodney, metallurgist Bullard Machine Tool Co.; vice-chairman, Harold Fish, treasurer the Ready Tool Co.; secretary-treasurer, C. W. Copeland, metallurgist Locomobile Co. of America. The executive committee consists of James E. Cooper, superintendent Columbia Nut & Bolt Co.; Harold T. Dow, factory manager Spring-Perch Co.; G. L. Hammond, president Black Rock Mfg. Co.; H. T. Leavenworth, manager Bridgeport Testing Laboratory; William S. Lyhne, factory manager Bridgeport Metal Goods Mfg. Co., and Charles F. Schmeltz, superintendent Curtis & Curtis Co.

Both of these new chapters were inaugurated by W. H. Eisenman, secretary of the national organization at Chicago, and at both inaugural sessions he delivered an address on "Heat Treatment, Its Past, Present and Future."

Industrial Developments of Warren, Ohio

E. L. Franklin, general manager of the Trumbull Public Service Co. of Warren, Ohio, allied with the Doherty interests of New York, announces that because of the industrial demands for electric power, capacity of the Summit Street producing station will be trebled by 1924, or increased from 70,000,000 k.w.h. to 229,000,000 k.w.h. This will take care of only present additions to industrial plants or to new plants under way.

"Concrete figures," he states, "will show just what Warren has done industrially. In January of this year the plant produced 8,345,000 k.w.h. It has an estimated population of nearly 35,000. Denver, a city nearly eight times the size of Warren, consumed but 6,867,000 k.w.h. Toledo, about seven times larger and an industrial center, consumed a little more than half above Warren's production; Mansfield, Ohio, used 3,400,000; Lincoln, Neb., 1,135,000; Alliance, Ohio, 1,106,000."

Doherty engineers are planning a plant along the Ohio River, to involve an investment of millions, and to transmit power to industrial centers within a wide radius.

Copper Export Association and German Markets

Under the style of Kupfer Import a company has been formed, with offices at 7 Behrenstrasse, Berlin, to take over the monopoly of the sales for the Copper Export Association, Inc., New York, for Germany, the former Austro-Hungarian monarchy, Scandinavia, Switzerland and Holland, says the London *Ironmonger*. The American Smelting & Refining Co., which controls the Export Association, is thus again represented in Berlin.

Foundry and Machine Shop Exhibit at Columbus Convention of A. F. A.

At the annual convention of the American Foundrymen's Association and the metals or non-ferrous division of the A. I. M. M. E. to be held jointly in the city of Columbus, Ohio, during the week of Oct. 4, there will be held the usual exhibit of foundry and machine shop equipment, tools and supplies.

The exhibits will be housed in the buildings of the Ohio State Exposition grounds which are located within the city limits and a 15-minute car ride from the leading hotels.

The 1920 exhibition committee appointed by President Koch is as follows: C. S. Koch, president, A. F. A., chairman, Fort Pitt Steel Casting Co., McKeesport, Pa.; W. R. Bean, vice-president, A. F. A., Eastern Malleable Iron Works, Naugatuck, Conn.; H. R. Atwater, Osborn Mfg. Co., Cleveland; S. T. Johnston, S. Obermayer Co., Chicago, Ill.; V. E. Minich, American Foundry Equipment Co., New York; J. P. Pero, 1216 Boatmen's Bank Building, St. Louis; J. S. McCormick, J. S. McCormick Co., Pittsburgh; Thomas W. Pangborn, Pangborn Corp., Hagerstown, Md.

Electrical Engineers' Meetings

The monthly meeting of the Pittsburgh section of the Association of Iron and Steel Electrical Engineers will be held in the Hotel Chatham in that city on Saturday, March 20, and will be preceded by a dinner. T. D. Lynch, research engineer of Westinghouse Electric & Mfg. Co., East Pittsburgh, is to present a paper on "Babbitt and Babbitting." The next meeting will be held April 17, and the paper for that evening is by Robert B. Treat, electrical engineer of General Electric Co., Schenectady, N. Y., on "Grounded Neutral." On May 22, the association will make a trip of inspection to the plants of the Trumbull Steel Co., Warren, Ohio, and on June 12, a meeting will be held in Pittsburgh at which R. H. Kyle, power engineer, Jones & Laughlin Steel Co., is to read a paper on "Current Limit Reactance."

Gear Manufacturers' Convention

Thus far more than 150 members have notified their intentions of attending the annual convention of the American Gear Manufacturers' Association that opens in Detroit April 29 and extends over three days. Of these 30 are women.

An extensive program has been arranged by the Detroit committee and a list of interesting speakers, including Henry M. Leland, of the Liberty Lincoln Motors Co., and F. W. Sinram, of Van Dorn & Dutton, Cleveland, president of the association, is scheduled.

Decreased Coke Production

WASHINGTON, March 16.—There was a 5 per cent decrease in the production of beehive coke during the week ended March 6, according to the weekly report of the Geological Survey. The total output in the United States is estimated at 412,000 net tons, a decline of 23,000 tons when compared with the previous week. A decrease was reported in all districts except West Virginia. Production in the Connellsville district was reported as 9749 tons less than during the week of Feb. 28. Shortage of cars was the chief factor limiting production.

The West Penn Steel Co., Brackenridge, Pa., will increase its capital stock from \$875,000 to \$5,875,000, the increase to be all in common stock, to be paid in dividends to the stockholders.

The Wheeling Machine & Welding Co., Wheeling, W. Va., has changed its name to the Wheeling Machine Products Co., and will increase its capital stock.

The National Brass & Copper Co., whose plant at Niles, Ohio, was burned recently, will rebuild and expects to be in operation in about two months.

Machinery Markets and News of the Works

DEMAND GROWING LESS

Business in Machine Tools Shows Some Falling Off

Railroad Buying Has Not Yet Materialized in Volume—Fair Buying of Tools in Some Sections

Generally quieter conditions prevail in machine-tool markets. Railroad buying has not materialized in volume and there are few inquiries. A small list has been issued at Chicago by the Chicago Junction Railway and the Chicago, Milwaukee & St. Paul Railroad is expected to enter the market soon. Actual purchases of tools by the railroads since March 1 have been negligible.

The condition of the machine-tool trade is indicated by the report from Chicago that some sellers report a decided falling off in business, while others say they are getting a very encouraging volume of orders. It is evident, however, that inquiries have dropped off throughout the country. The Griffin Wheel Co. has

come into the Chicago market for about \$30,000 worth of tools for its new plant at Council Bluffs, Iowa.

At Cleveland round-lot orders are lacking. A fair business in single tools or small lots is being done.

A slight lull in buying in New England is attributed to transportation conditions, some of the machine-tool plants having large stocks of tools on hand which they have been unable to ship. It will take most of them several weeks, under favorable conditions, to catch up on overdue shipments. The General Electric Co. has issued a new list for its Lynn, Mass., plant. The Fore River Shipbuilding Corporation has issued a list, but purchases will be made at the main office, Bethlehem, Pa.

The largest inquiry before the New York trade is from the Otis Elevator Co., covering about 70 machines for its Yonkers, N. Y., plant.

Cincinnati machine-tool builders report that business begins to pick up again. They are well booked with orders and anticipate that their plants will be kept busy throughout the year.

It is reported at Cincinnati that the Chicago & Northwestern Railroad has issued an inquiry for about \$50,000 worth of machine-tool equipment.

New York

NEW YORK, March 16.

Inquiries for machine tools have been comparatively few in number in the past week, the only large inquiry now pending coming from the Otis Elevator Co., which wants about 70 machines for its Yonkers, N. Y., plant. Among its requirements are 11 upright drills, 6 sensitive drills, 21 radial drills and tapping machines, 1 single-head bolt cutter, 1 cutting-off machine, 5 plain milling machines, 3 plain grinders, 3 worm-thread milling machines, 3 hobbing machines, 2 vertical boring mills, 1 keyway milling machine, 6 hand screw machines, 6 automatic screw machines, 2 horizontal tapping machines.

Representatives of the French commission now in this country to select machine tools from Government surplus stocks are visiting various plants. One of the members of the commission last week took a large part of the surplus machine-tool equipment at the Watervliet Arsenal.

Purchasers of both overhead traveling cranes and locomotive cranes continue to buy on price. Construction work that portends future business for crane manufacturers is the announcement of the Sun Shipbuilding Co., Chester, Pa., that a 600-ft. drydock is to be built at Chester, capable of handling ships up to 20,000 tons. It is estimated to cost about \$3,000,000. Several additional shops will also be constructed. Among current inquiries are the Federal Shipbuilding Co., Kearny, N. J., a 5-ton overhead traveling crane and the Cambria Steel Co., Philadelphia, three 20-ton, 60-ft. span overhead traveling cranes.

Recent sales include: The Solvay Process Co., Syracuse, N. Y., through the J. G. White Engineering Co., four 25-ton and one 35-ton, 46-ft. 2½-in. span overhead travelling cranes from the Bedford Foundry & Machine Co.; the American Copper Smelting & Refining Co., Baltimore, Md., a 10-ton overhead traveling crane from the Pawling & Harnischfeger Co.; the Acme Steel & Malleable Iron Works, Buffalo, N. Y., a 5-ton, 58-ft. 6-in. span overhead traveling crane from the Shepard Electric Crane & Hoist Co.; the Mahoning & Chenango Valley Light & Power Co., through the Republic Engineers, New York, a 15-ton, 8-wheel locomotive crane from the Brown Hoisting Machinery Co.; the Schmidt & Ault Paper Co., York, Pa., a 20-ton, 50-ft. boom locomotive crane from the Ohio Locomotive Crane Co.; and the Tremont Nail Co., West Wareham, Mass., a 20-ton, 50-ft. boom, 8-wheel

locomotive crane from the Ohio Locomotive Crane Co. The Reading Iron Co., Reading, Pa., recently in the market for a locomotive crane purchased of the Orton & Steinbrenner Co. The General Electric Co. has purchased the 30-ton overhead traveling crane for the Everett, Mass., plant.

The E. Behringer Sheet Metal Works, Inc., 315 East Ninety-seventh Street, New York, in addition to the two-story factory at 116-120 Jabez Street, Newark, N. J., has purchased adjoining land to give a total site of 140 x 250 ft. It is planned to build another structure of the same size and a new office building.

The Waterhouse & Freeman Mfg. Co., 229 Mulberry Street, Newark, N. J., manufacturer of hardware, has acquired a one-story factory with site at the corner of Tichenor Street and New Jersey Railroad Avenue, in the name of the Watfreenot Corporation, its realty holding organization. The structure will be remodeled for increasing production.

The Gibraltar Tire & Rubber Co., 234 Fourth Avenue, New York, has completed plans for a one and two-story brick plant, 88 x 142 ft., at the Hudson County Boulevard and Thirteenth Street, West New York, N. J., to cost about \$60,000.

The Burglar-Proof Auto Lock & Car Specialty Corporation, New York, has been incorporated with a capital stock of \$10,000 by E. Horton, J. F. Hennessy and F. J. Gannon, 160 East Sixty-fifth Street, to manufacture locking devices.

The Ordnance Department, Washington, is arranging for the removal of about 56 of the large buildings forming the ordnance depot at Morgan Station, near Perth Amboy, N. J. The structures were built on leased land, and it is proposed to turn this part of the property back to the original owners.

The Hydraulic Ash Hoist Co., Newark, N. J., has been incorporated with a capital of \$50,000 by Charles H. Fay, Verner F. Davis and Edward J. Delaney to manufacture hoisting machinery.

L. Mundet & Son, 59 Pearl Street, New York, manufacturers of cork and insulation products, have acquired property of about 7 acres in the Hillside section, Newark, N. J., as a site for a branch plant. The initial building will be one-story, about 175 ft. square, and will give employment to about 200 persons. It is planned to have it ready for service early in June.

The National Foundry Co., 312 Adams Street, Newark, N. J., has filed notice of organization to manufacture iron

and steel castings, etc. Edward Fratello, 9 Cottage Street, heads the company.

The Duplex Engine Governor Co., 36 Flatbush Avenue Extension, Brooklyn, is negotiating with the Chamber of Commerce, Dover, N. J., for the establishment of a new plant in that city. It is proposed to acquire a three-acre tract in the eastern part of the city, with erection of an initial building, one-story, 100 x 350 ft., to cost about \$100,000, including equipment.

The Judson Tractor Co. of New York has acquired the plant of the Standard Process Steel Co., Broad Street, Phillipsburg, N. J., for its new branch tractor plant. The works will be altered and it is planned to erect a number of new buildings.

Fire originating in the boiler plant at the works of the Carteret Oil & Refining Co., Roosevelt, N. J., March 9, destroyed a section of the plant with loss estimated at about \$200,000.

The S. G. V. Auto Parts Co., 93 Sunswick Street, Long Island City, N. Y., is considering plans for the erection of a new plant at Newark, N. J., for the production of pleasure automobiles. A site is being selected. This company, known as the S. G. V. Motor Car Co., was previously located at Reading, Pa. With the acquisition of its plant by other interests, operations have since been devoted to the manufacture of parts for S. G. V. cars. The company has recently been reorganized with Lovett A. Grant as president.

The Board of Freeholders, Newark, N. J., is considering plans for a central service and repair plant for county automobiles. A special committee of the board has been appointed to arrange details, consisting of Freeholders Lacombe, Hicks and Lindsley.

The American Automobile Body Mfg. Co., Newark, N. J., has filed notice of organization, with office at Commerce and Market streets, to manufacture automobile bodies. C. C. A. Reetz, 820 Grove Street, Elizabeth, N. J., and George S. Dougherty, Flushing, N. Y., head the company.

The New Jersey Iron Co., Jersey City, N. J., has been incorporated with a capital stock of \$1,000,000 by Frederick Scheuter, 617 Lafayette Avenue, Brooklyn; John T. Easton and John F. Harrington, 55 West Seventy-sixth Street, New York, to manufacture iron and steel products.

The South Cove Engineering Co., Jersey City, N. J., has been incorporated with a capital stock of \$100,000 by G. L. Record, K. D. Tiffany and Thomas P. Connolly to operate a shipbuilding and repair works in the South Cove section of the city.

The Whitlock Cordage Co., Communipaw Avenue, Jersey City, N. J., has filed plans for a six-story, reinforced-concrete addition, 100 x 125 ft., to cost \$500,000 with equipment.

The Grand Sheet Metal Works, 288 Grand Street, Jersey City, N. J., has filed notice of organization. G. E. Henderson, 252 Barrow Street, heads the company.

The American Splint Corporation, Aspen Station, Kearny, N. J., is planning for the sale of its local plant, aggregating about 70,000 sq. ft. of manufacturing space, with individual power plant. The company has completed the erection of a new works in Quebec, Canada, and will concentrate operations at that point.

The Targett Mfg. Co., 126 Commerce Street, Newark, N. J., has filed notice of organization to manufacture hardware specialties. Clifford R. Hadfield, 237 Garside Place, heads the company.

Plans have been perfected for a motor car instruction school on Bedford Avenue, Brooklyn, as an outgrowth of the Y. M. C. A. School, 1104 Bedford Avenue. The building will be equipped for machine-shop instruction, assembling, repair work, etc., and is estimated to cost \$150,000. E. A. Drumm is principal of the school.

The Pilot Packing Co., New York, has been incorporated with a capital stock of \$50,000 by H. S. and C. S. Fitzgibbons, and J. I. Taylor, 1 Water Street, to manufacture engine and power-plant supplies.

The Parker Sheet Metal Works, 489 Broome Street, New York, has increased its capital stock from \$25,000 to \$75,000.

The Bagley & Sewall Co., Watertown, N. Y., manufacturer of pumping equipment, grinders, etc., has awarded a contract to the Austin Co., 217 Broadway, New York, for a one-story brick and steel machine shop, 100 x 235 ft., to cost \$75,000, including equipment.

The Turn-O-Stop Mfg. Corporation, New York, has been incorporated with a capital stock of \$300,000 by W. T. Meheffey, B. J. Snow and A. Weiss, 149 Broadway, to manufacture automobile signal devices.

The Ignition Specialties Co., New York, has been incorporated with a capital stock of \$50,000 by O. R. Gischow, C. Fay, and S. H. Kunstlich, 24 Mount Morris Park West, to manufacture automobile ignition equipment.

Property of the Atlantic Welding Corporation, New York,

will be sold on March 24 at the office of the Alien Property Custodian, Francis P. Garvan, 110 West Forty-second Street.

The Studebaker Corporation, 1751 Broadway, New York, is having plans prepared for its proposed three-story service and repair works, 68 x 95 ft., at Bedford Avenue and Sterling Place, Brooklyn, to cost \$200,000, including equipment.

The Hurlburt Service, Inc., New York, has been incorporated with a capital stock of \$50,000 by S. E. Dunkle, M. L. Bayard and W. N. Hurlburt, 10 East Thirty-ninth Street, to manufacture automobile parts, etc.

The Telephone-X Co., New York, has been incorporated with a capital stock of \$25,000 by W. F. Wagner, E. M. Hein and C. Joseph, 198 Seventeenth Street, Brooklyn, to manufacture telephone apparatus.

The United States Shipping Board Emergency Fleet Corporation, 140 North Broad Street, Philadelphia, is asking for bids up to March 31 for the steel shipbuilding plant at Port Jefferson, Long Island, N. Y., operated in the name of the Bayles Shipyards. The sale includes all realty of the board, equipment and materials, as well as six uncompleted steel vessels now on the ways.

The Atmospheric Refrigeration Corporation, New York, has been incorporated with a capital stock of \$120,000 by L. B. Kendall, W. Gallagher and W. P. Cavanaugh, 1476 Broadway, to manufacture iceless refrigerators, etc.

The Colador Engineering Corporation, New York, has been incorporated with a capital stock of \$50,000 by A. H. Bosworth, H. M. Smith and G. A. Dixon, Jr., 320 Park Avenue, to manufacture machinery, lubricating devices, etc.

The Westinghouse Lamp Co., 165 Broadway, New York, has awarded a contract to Westinghouse Church Kerr & Co., 37 Wall Street, for a four-story reinforced-concrete addition to its plant in the Watsessing district, Bloomfield, N. J., 80 x 550 ft., to cost about \$1,000,000, including equipment.

The West Virginia Pulp & Paper Co., 200 Fifth Avenue, New York, is having plans prepared for a new mill at Duke, Md., to comprise two two-story buildings to cost about \$300,000, including machinery. Lockwood, Greene & Co., 101 Park Avenue, are the engineers.

The Ford Regulator Corporation, New York, has been incorporated with a capital stock of \$175,000 by E. H. Bolton, T. A. Hardy and T. B. Ford, White Plains, to manufacture valves, regulators, etc.

The Dictograph Co., Beaufort Street, Jamaica, Long Island, N. Y., manufacturer of electric-operated devices, has awarded a contract to the Barney-Ahlers Construction Corporation, 110 West Fortieth Street, New York, for a one-story reinforced-concrete addition, 50 x 144 ft., at Schooley Place and Chichester Avenue.

The White Metal Rolling & Stamping Co., Brooklyn, has been incorporated with a capital stock of \$25,000 by S. Berkowitz and L. Feldman, 271 Broadway, New York, to manufacture rolled and stamped metal products.

The Bettalyte Incandescent Lamp Co., New York, has been incorporated with a capital stock of \$100,000 by A. Endicott, N. Simpson and R. Press, 119 West 114th Street, to manufacture electric lamps.

Boig & Hill, Inc., New York, has been incorporated with a capital stock of \$30,000 by W. A. Doig, W. T. Hill and J. Mayer, 2358 Webster Avenue, to manufacture heating appliances.

The General Electric Co., River Road, Schenectady, N. Y., has plans under way for a one-story steel and concrete foundry on Central Avenue, 200 x 600 ft., to cost about \$70,000.

A bill has been introduced at the State Legislature, Albany, N. Y., Senator J. Mackrell, Rensselaer, providing for the establishment of a hydroelectric power plant by the State and allowing an appropriation of \$500,000 for this purpose.

The Bettman Nut Co., New York, has been incorporated with a capital stock of \$20,000 by B. and C. H. Bettman and L. G. Davies, 172 Chambers Street, to manufacture bolts, nuts, etc.

The Auslander Police Lock Co., 127 West Twenty-first Street, New York, has leased three buildings adjoining its works at 155-59 West Twenty-first Street, for extensions.

The Van Vlaanderen Machine Co., 2 Broadway, Paterson, N. J., manufacturer of textile machinery, has had plans prepared for a one and two-story addition, 80 x 200 ft., to be equipped in part as a machine shop.

The contract for a new building for the Mica Insulator Co., Schenectady, N. Y., has been awarded to the Turner Construction Co., 242 Madison Avenue, New York. It will be a four-story addition, 50 x 130 ft., and a one-story addition to an existing building. W. L. Stoddard, of 9 East Fortieth Street, New York, is the architect. The work will cost approximately \$125,000.

New England

Boston, March 15.

Purchases of machine tools the past week were less than for the previous seven days. Buying has been confined mostly to one and two machines, yet the aggregate business booked was well above that for the corresponding period last year. The trade does not look upon conditions as indicating a slump, the general impression being that the transportation situation is partly accountable. Further, some machine tool builders in this section are not anxious to take on new business under present conditions. At Worcester and several other large towns the accumulation of ready-to-ship tools in several instances is so large that it is beginning to have an effect on production. This condition is not confined to machine tools alone, but includes textile machinery. One manufacturer of this class of machinery has built a large shed under which it has stored many thousand machines which will require at least 500 freight cars to move. The decrease in demand for second-hand machine tools the past week is more noticeable than in new tools.

The outstanding feature of the market is a new list issued by the General Electric Co., Lynn, the largest which has come out in many months. The company has bought comparatively little against this but has been buying against old lists which constitute fully one-half the actual business transferred since last reports. Notwithstanding its labor troubles, the United Shoe Machinery Co., Beverly, has asked for quotations on a number of tools, and the Saco-Lowell Works has placed further orders. The Brown & Sharpe Mfg. Co., Providence, R. I., has also bought equipment. The Fore River Shipbuilding Corporation is out with a fairly large list, but purchase will be made through the Bethlehem office.

The Cambridge Cement Stone Co., 156 Lincoln Street, Brighton, Mass., is in the market for a 5-ton traveling crane, and Stone & Webster are still buying against its requirements. A western Massachusetts contractor has bought four small cranes for a plant under construction.

Bids will close soon for a four-story manufacturing building, 60 x 200 ft., for the Union Twist Drill Co., Athol, Mass.

It is expected that work on the additions to the plant of the Westfield Mfg. Co., Westfield, Mass., bicycles and motorcycles, will start at an early date.

Contract has been awarded for the construction of a one-story, 50 x 117-ft. machine shop on Newport Avenue, Quincy, Mass., for the Vedoe-Peterson Co., 167 Oliver Street, Boston.

Plans are being drawn for a six-story factory for Lever Brothers, Cambridge, Mass., soap manufacturers. The company recently bought a number of machine tools, but is not yet covered.

A section of the Boston & Maine Railroad car shops, 150 ft. long, at Concord, N. H., recently caved in under the weight of snow. It threw 150 men out of employment and will necessitate the purchase of additional equipment.

The J & B Mfg. Co., Pittsfield, Mass., has bought the Fritchard Building for \$40,000. It has occupied a portion of the building for some time, but owing to increased business it is necessary to expand. It will be remodeled and with the exception of the ground floor will be occupied entirely by the company, which manufactures ignition specialties, timers for automobiles, replacement coils and automobile repair tools. It employs approximately 100.

The Holyoke Heater Co., Holyoke, Mass., has bought the factory at 90 Sargent Street and an adjoining strip of land for approximately \$48,000. The McHugh Foundry Co. and the Holyoke company have occupied the building for some time. The McHugh company has been taken over by the Holyoke Foundry Co., but will continue to occupy its quarters. The Holyoke Heater Co., however, will use the greater part of the structure and is considering erecting an addition within the next few months.

The Valley Foundry Co., East Hampton, Conn., manufacturer of gray-iron and machinery castings, which succeeded the East Hampton Foundry Co., has built a foundry, 50 x 110 ft., with addition, 28 x 60 ft., with a daily capacity of 5 to 8 tons of castings of 1 oz. to 1000 lb. John V. Dahlberg is president and manager; Rueben Ostergren, assistant manager, and Charles Talkelson, secretary and treasurer. Additional directors are H. G. Hodge and Carl Olander. The company is now employing about 18 molders.

The Peck Spring Co., Plainville, has been incorporated with a capital stock of \$75,000, divided into 750 shares of \$100 each, to take over the copartnership under the same name. It manufactures helical springs, hair springs and pressure gages. Owing to increased business the erection of another plant is contemplated which will be devoted to the hair spring department. D. C. Peck is president and secretary, and D. K. Peck, treasurer and general manager.

The General Electric Co., Pittsfield, Mass., has bought 58 acres east of its works in Morningside, on which it intends to erect a plant for the manufacture of porcelain for insulation purposes. Two buildings, each 100 x 400 ft., will be erected, at an estimated cost of \$250,000. The plant when completed will give employment to 300 additional men.

The American Bosch Magneto Corporation, Springfield, Mass., has increased its capital stock to \$2,500,000.

The Hackett & Doolittle Co., Norwalk, Conn., has been incorporated with a capital stock of \$25,000 by M. W. and R. E. Hackett and J. W. Doolittle, all of Stamford, to manufacture automobile parts and other metal products.

The Winter Machine Co., Providence, R. I., has been incorporated with a capital of \$200,000 by Raymond W. Tibbetts, Robert S. Emerson and William E. Spranklin, 24 Kingston Avenue, to manufacture refrigerating machinery.

The Miller Brothers Cutlery Co., Pratt Street, Meriden, Conn., has completed plans for a four-story brick addition, 52 x 90 ft., to cost about \$50,000.

The American Engineering Co., East Main Street, New Britain, Conn., has plans under way for a one-story forge shop addition, 40 x 65 ft., to cost about \$15,000.

The Liberty Engine Co., Seymour, Conn., has filed notice of dissolution.

The Narragansett Electric Lighting Co., Providence, R. I., has completed plans for the erection of a five-story brick and steel addition, 76 x 95 ft., to its electric power plant on South Street. It will be equipped with boilers and other steam apparatus, electric machinery, etc., and is estimated to cost \$750,000, including equipment.

The Berkshire Steel Products Co., Bridgeport, Conn., is planning for the erection of a two-story extension, 54 x 140 ft., to cost about \$35,000.

Philadelphia

PHILADELPHIA, March 15.

The Pennsylvania Railroad Co., Broad Street Station, Philadelphia, has arranged with the Baldwin Locomotive Works for the repair of about 200 engines at this company's Eddystone plant. The Altoona shops of the Pennsylvania Railroad will also be used for a similar purpose, and a large force will be employed to speed up the work. Production of new locomotives at the Baldwin works is now averaging from 1800 to 2000 a year.

The Wade Mfg. Co., Camden, N. J., has been incorporated with a capital of \$150,000 by Walter S. and Frank E. Wade, and Frank H. Ryan, to manufacture spark plugs.

The Packard Motor Car Co., Atlantic City, N. J., has purchased property from the West Jersey & Seashore Railroad, aggregating about 144,000 sq. ft., for a site for its proposed one-story service and repair works, 95 x 218 ft.

A machinery installation to cost about \$7,000 will be made in the new shop addition, 50 x 125 ft., at the works of Charles Y. Barlow, Brook Street, Trenton, N. J., contractor, to be used for mill work, metal-working, etc.

The Reading Iron Co., Reading, Pa., is taking bids for a one-story addition, 64 x 77 ft.

The Precision Grinding Wheel Co., Torresdale Avenue, Holmesburg, Pa., has awarded a contract to John R. Wiggins & Co., Otis Building, for a two-story, reinforced-concrete plant, 96 x 298 ft., to cost \$100,000 including equipment.

The L. H. Gilmer Co., Cottman and Keystone streets, Philadelphia, manufacturer of belting, has broken ground for a one-story addition to its plant at North Wales, 75 x 100 ft., to cost \$25,000.

The Victor Metal Co., Westmoreland Street, near Richmond, Philadelphia, has filed plans for a one-story extension, 28 x 50 ft.

The Apperson Automobile Co., Broad and Race streets, Philadelphia, is completing plans for a six-story service and repair works, 60 x 100 ft., on Broad Street, near Girard, to cost \$175,000.

The Electric Storage Battery Co., Nineteenth and Allegheny streets, Philadelphia, has acquired about 40 acres near its plant for proposed additions.

N. A. Ferry, 909 South Twenty-sixth Street, Philadelphia, operating a metal roofing works, has filed plans for a two-story shop addition, 16 x 32 ft., to cost \$5,000.

The Maccar Truck Co., Scranton, Pa., manufacturer of automobile trucks, is planning for a two-story addition, 100 x 650 ft.

The Penn Foundry & Machine Co., Bath, Pa., has completed arrangements for a one-story foundry.

The Clay Products Co. of America, Zanesville, Ohio, headed by R. C. Burton of that city, has acquired property at New Hope, Pa., and plans the erection of a brick and

clay products plant to cost about \$750,000 including equipment.

The Merchant & Evans Co., 2035 Washington Street, Philadelphia, manufacturer of tin plate specialties, metal roofing, etc., has acquired about 12 acres at Lancaster, Pa., for a new branch plant. It is proposed to inaugurate construction at an early date.

The Keystone Bolt Co., State Street, Wilkes-Barre, Pa., has completed arrangements for a new one-story plant, 50 x 100 ft., to cost \$25,000.

The International Electric Co., Waynesburg, Pa., has been incorporated with a capital of \$100,000 under Delaware laws by J. A. Hullings, Waynesburg; Harold Jackson and W. L. Jordan, Pittsburgh, to manufacture electrical equipment.

The Sun Shipbuilding Co., Chester, Pa., has perfected plans for a 600-ft. dry-dock, with a number of other extensions and improvements. Three additional shipways will be built, a wet-dock, 200 x 600 ft., and new shop buildings for general service. It is planned to inaugurate erection early in April and have the extensions ready for service in the fall. The project, including machinery, etc., is estimated to cost \$3,000,000. John G. Pew is president, and F. S. Reitzel, secretary and treasurer.

The Mahoning Hardware & Implement Co., Punxsutawney, Pa., has been incorporated with a capital stock of \$50,000 by Linus M. Lewis and associates, to manufacture hardware products, etc.

The Pennsylvania Coal Co., Pittston, Pa., is considering plans for a new electric power plant at its local properties to cost \$200,000.

The Primo Products Corporation, Philadelphia, capitalized at \$10,000, has been organized by Scott Cummings, 1618 Green Street; Emile Brock, 5373 Gainor Road, Philadelphia, and John M. Broomall, 19 East Second Street, Media, Pa., to manufacture electrical machinery. Emile Brock is treasurer.

The International Tool Co., Abington, Pa., capitalized at \$15,000, has been chartered to manufacture tools, hardware, etc. C. E. Thomsen, 1935 Chestnut Street, is treasurer and one of the incorporators. The others are Torris Thomsen, Roslyn, Pa., and George J. Bragg, 4530 North Tenth Street, Philadelphia.

The plant of the Quincy Engine Co., Chambersburg, Pa., will be placed in operation within a short time by the lessee, the Southwark Foundry & Machine Co., 430 Washington Avenue, Philadelphia. A small line of machinery will be produced.

The Champion Blower & Forge Co., Lancaster, Pa., has awarded a contract for a one-story brick foundry, 60 x 140 ft., near its plant, to John S. Grube, contractor, Lancaster.

Pittsburgh

PITTSBURGH, March 15

Fire, Feb. 29, damaged the works of the Keystone Bronze Co., Thirty-ninth Street and Allegheny Valley Railroad, Pittsburgh, with loss estimated at about \$10,000.

The Chevrolet Motor Co., Pittsburgh, has leased a building, 100 x 200 ft., now in course of erection at Center Avenue and Cypress Street, Shadyside, for a service and repair works, in addition to that at Baum Boulevard and Beatty Street.

The McKenna Brass & Mfg. Co., First and Ross streets, Pittsburgh, is having plans prepared for a four-story and basement addition, 64 x 84 ft., to cost \$150,000. It will be equipped for the most part as a machine shop.

The Westinghouse Union Battery Co., Pittsburgh, has been organized as a Westinghouse interest to manufacture electric storage batteries. It will occupy three floors of one of the Union Switch & Signal Co. buildings, at Swissvale, Pa. Initial production is placed at over 1000 batteries a day. At a later date, it is proposed to build a new plant adjoining the Swissvale works.

The West Penn Power Co., Pittsburgh, is working on further plans for its power plant development at Springdale, Pa. Construction is under way. It will be one-story, 200 x 900 ft., and with mine development work and other features, and is estimated to cost about \$5,000,000. A. M. Lind is president.

The Acme Fishing Tool Co., Parkersburg, W. Va., manufacturer of well-drilling equipment, has increased its capital stock to \$350,000.

The Graham Nut & Bolt Co., Neville Island, Pittsburgh, has acquired about four acres of adjoining property for future extensions. It is said that the company will defer any construction work for some time.

The Union Electric Steel Co., Pittsburgh, a Delaware corporation, has increased its capital stock from \$350,000 to \$3,000,000.

The Pittsburgh Gear & Machine Co., Twenty-seventh and Smallman streets, Pittsburgh, has awarded a contract to Harry Dunn, 1309 Locust Street, for a one-story addition, 20 x 60 ft., to cost \$15,000.

The Armorcord Rubber Co., Morgantown, W. Va., recently organized, has awarded a contract to the Truscon Steel Co., Youngstown, Ohio, for a one-story plant, 50 x 155 ft., for the manufacture of inner tubes and other rubber specialties. Joseph H. McDermott is president and E. D. Tumlin, treasurer.

The Bureau of Yards and Docks, Navy Department, Washington, D. C., is planning for a new electric power plant at Charleston, W. Va., to cost about \$40,000.

The new enamelware plant of the Ohio Valley Enameling Co., Huntington, W. Va., now in course of erection, will be operated in the name of the Sax Stamping Co.

The Lake Erie Foundry Co., Girard, Pa., capitalized at \$50,000, has been organized by John A. Zurn and John P. Schneider, Erie, Pa., and William C. Shafer, Girard, to manufacture iron and steel castings. W. Shafer is treasurer.

Buffalo

BUFFALO, March 15.

The Sowers Mfg. Co., 1300 Niagara Street, Buffalo, manufacturer of machinery, automobile castings, etc., has had plans prepared for a one and three-story addition, 70 x 250 ft., to be equipped as a machine shop and foundry at an estimated cost of \$125,000, including equipment.

The new addition at the plant of the National Carbon Co., College Avenue, Niagara Falls, N. Y., will be used as a furnace building. It will be one-story, 85 x 320 ft., of brick and steel, and is estimated to cost \$150,000, including equipment.

The Duesenberg Automobile Motors Co., Inc., Rochester, N. Y., has been incorporated in Delaware with a capital stock of \$15,000,000 to manufacture Duesenberg type automobile motors. Fred and Otto Duesenberg, Duesenberg Motors Corporation, Rochester, are interested in the new organization, and plans are under way for the establishment of a plant in the vicinity of Cleveland, Ohio. L. M. Rankin, president of the Highlander Motor Corporation, Kansas City, Mo., is prominent in the new company.

The Rochester Gas & Electric Corporation, Rochester, N. Y., is planning for extensions and improvements at its electric power plants to cost about \$905,000. The work in the electrical department is estimated to cost \$850,000, including equipment, and in the steam department of production, \$55,000. Application has been made to the Public Service Commission for permission to issue stock to the amount of \$500,000 to defray a portion of the cost.

The Powelson Foundry & Machine Co., Rochester, N. Y., has been incorporated with a capital of \$200,000 by J. W. Powelson, F. C. Kimmel and H. J. O'Brien to manufacture machinery and parts.

The Bancroft-Jones Corporation, Mutual Life Building, Buffalo, manufacturer of fabricated sectional steel buildings, with works on Ohio Street, has increased its capital stock from \$200,000 to \$400,000.

The expansion at the plant of the General Drop Forge Co., 1738 Elmwood Avenue, Buffalo, will include a one-story heat treatment plant, 100 x 100 ft., and a one-story forge shop, 60 x 100 ft., estimated to cost about \$75,000 each, including equipment.

The Blue Diamond Oil Burner Corporation, Niagara Falls, N. Y., has been incorporated with a capital stock of \$250,000 by V. and F. Kluga, to manufacture oil-burning apparatus.

The Endicott Forging & Mfg. Co., Endicott, N. Y., has increased its capital stock from \$200,000 to \$300,000. It is planning for an addition.

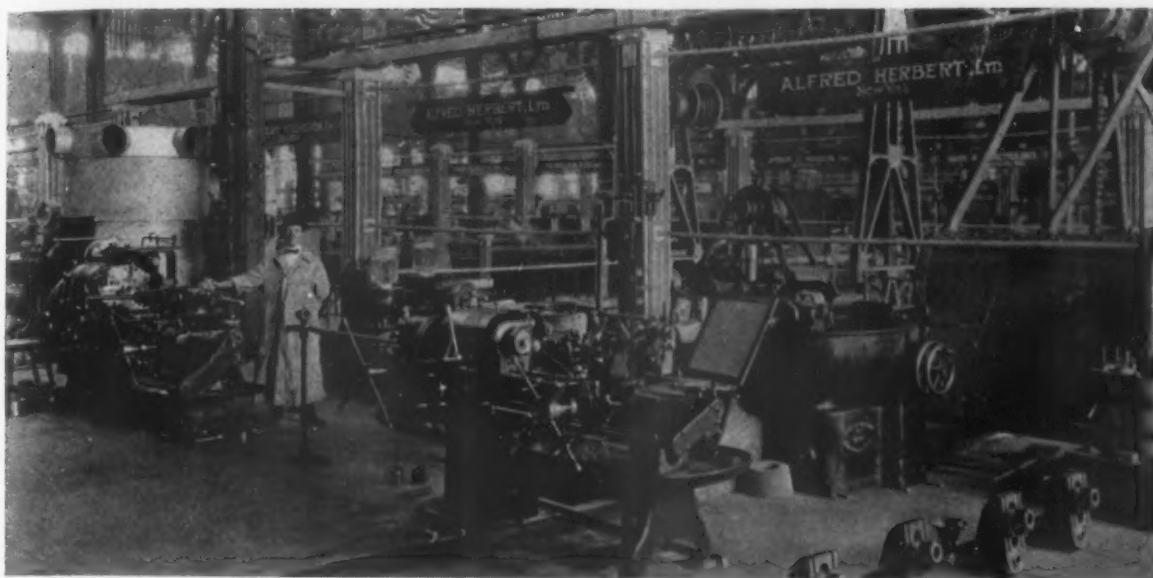
The Acetylene Gas Corporation of America, Plattsburg, N. Y., has been incorporated with a capital stock of \$500,000 by W. B. Ragatz, A. W. Rowbotham and W. L. Braithwood to manufacture acetylene apparatus.

The McGill & Holford Mfg Co., Floral Avenue, Binghamton, N. Y., has broken ground for a one-story foundry addition, 34 x 120 ft.

The Thelen Iron Works, Syracuse, N. Y., has been incorporated with a capital stock of \$20,000 by M. Knauss, H. S. Mallory and E. C. Thelen to manufacture iron and steel products.

The Sargent & Greenleaf Co., 178 Court Street, Rochester, N. Y., manufacturer of locks, key blanks, etc., has commenced the erection of a one-story plant at Joseph Avenue and Norton Street, 40 x 130 ft., to cost about \$165,000 and to include a foundry.

The Engineering Co., Jamestown, N. Y., has been incor-



View of the Exhibit of Alfred Herbert, Ltd., a British Machine-Tool Builder Whose Turret Lathes Were Exhibited in This Country for the First Time at the Recent Convention Exhibit of the American Foundrymen's Association. A New York Branch Has Been Organized

porated with a capital stock of \$50,000 by G. J. Johnson, J. Stainthorpe and R. L. Buck to manufacture foundry equipment.

The Lapp Insulator Co., LeRoy, N. Y., manufacturer of electrical insulators, has increased its capital stock from \$150,000 to \$500,000.

The Lovell Mfg. Co., Erie, Pa., manufacturer of clothes wringers, etc., has awarded miscellaneous contracts for a two-story and basement works, 75 x 145 ft., at Fourteenth and Holland streets, to be equipped for the manufacture of castings, springs, etc. The cost is estimated at \$75,000.

The Smart-Turner Machine Co., Hamilton, Ont., is having plans prepared for a new plant at Erie, Pa.

The Standard Lock Co., Syracuse, N. Y., has increased its capital stock from \$65,000 to \$125,000.

The M-S-G-L Co., Syracuse, N. Y., has been incorporated with a capital stock of \$200,000 by A. Meldrum, J. C. Semon and J. A. Greiner, to manufacture tools and machine parts.

The United States Hoffman Co., 329 Temple Street, Syracuse, N. Y., manufacturer of clothes-pressing machines, etc., is planning for a new foundry on Fayette Street.

Baltimore

BALTIMORE, March 15.

In connection with the incorporation of the Drop Forge & Mfg. Co., 921 Sterrett Street, Baltimore, with \$100,000 capital stock for the manufacture of iron, steel and metal products, the company has taken over the lead plant of John T. Lewis & Co., Columbia Avenue. About 300 men will be employed and a general drop-forging business will be conducted. John M. Lawrence is president.

The Moreton Corporation, 326 North Holliday Street, Baltimore, has been incorporated with \$20,000 capital stock to manufacture wood and metal patterns. The incorporators are Harry C. Thomas, Spencer Moreton and Harry W. Leutner. The new corporation takes over the business of Moreton Brothers, manufacturers of wood patterns. Plans are being made to enlarge the business and establish an alloy foundry for the manufacture of metal patterns. Equipment will be required.

The Emery Steel Castings Co., Baltimore, recently incorporated by Frank T. Whitney, Elkton, Md., Louis J. Emery, 603 Continental Building, and I. C. Emery, 210 North Garrison Lane, Baltimore, will establish a plant, a site for which is being sought. Furnaces and steel foundry equipment will be installed.

The contract for the construction of the first unit of the Columbia Graphophone Mfg. Co. at Orangeville, Md., near Baltimore, has been awarded to the M. A. Long Co., Munsey Building, Baltimore. The plant will consist of a six-story reinforced-concrete cabinet factory, with floor space of 52,500 sq. ft.; power house, 85 x 100 ft., and a dry kiln, 76 x 500 ft. There will be direct track connections with the Baltimore & Ohio and Pennsylvania railroads, with about 10 miles of trackage on the property. The entire work under contract will cost about \$2,500,000.

The Baugh Chemical Co., Clinton and Eleventh streets, Baltimore, fertilizer manufacturer, will install 500 hp. in motors.

Fire, March 10, did considerable damage at the Waverly plant of Dietrich Brothers, structural steel fabricators, Reese and Twenty-seventh streets, Baltimore.

The Union Shipbuilding Co., Fairfield, Baltimore, has awarded a contract to the Empire Engineering Co., Bourse Building, for a two-story shop addition, 75 x 100 ft., to cost \$30,000.

The Federal Motors Co., 803 Low Street, Baltimore, has acquired property at North Avenue and Mount Royal Avenue for a one-story service and repair works, 150 x 300 ft.

The Baltimore & Ohio Railroad, Baltimore, has denied the report that it proposes to electrify its line over the Alleghany Mountains.

The Norfolk Shipbuilding & Dry Dock Corporation, Argyle Avenue, Norfolk, Va., has plans under way for seven new buildings for general construction and repair, machine work, etc., at a cost of about \$100,000.

The Mayhew Steel Products, Inc., 291 Broadway, New York, has acquired 10 acres at Hopewell, Va., and plans the immediate erection of a plant for the manufacture of wrenches, plyers, and similar specialties. It is said to be considering the removal of its plant at Shelburn Falls, Mass., to the new location. The initial works at this latter place is estimated to cost \$150,000 including equipment.

The Bridgewater Plow Corporation, Bridgewater, Pa., is planning to add the manufacture of plow handles, etc. It is proposed to install wood-working machinery, engine, boiler and other equipment for the new department.

Plans for a two-story boiler and power plant, 65 x 104 ft., to cost about \$50,000, have been completed by the Maryland Casualty Co., Baltimore and Guilford streets, Baltimore, for its proposed works on the Dublin property at Fortieth Street and Cedar Avenue.

The plant of the Baltimore Roofing & Asbestos Mfg. Co., Asbestos, Md., will be sold at a receiver's sale March 25. The property consists of a main plant, 54 x 867 ft., with smaller buildings equipped as power plant, machine shop, etc. The site comprises about 19 acres. Joseph N. Ulman, 1419 Fidelity Building, Baltimore, is receiver.

The United States Shipping Board Emergency Fleet Corporation, Sixth and B streets, Washington, D. C., is arranging for the sale of its concrete shipbuilding plant at Wilmington, N. C. The site comprises about 42 acres, with 1600 ft. waterfront on the Cape Fear River. The sale will include machinery, tools and equipment. Bids are being asked up to April 7.

The Consolidated Gas, Electric Light & Power Co., Lexington Building, Baltimore, has awarded a contract to the Patapsco Iron Works, Inc., Baltimore, for a one-story brick power house at Spring Gardens, Baltimore.

The Inter-Ocean Iron Works, Norfolk, Va., has been incorporated with \$100,000 capital stock. E. Anderson is president, and A. R. Anderson, secretary and treasurer.

The foundry of the Carolina Machine Co., Fayetteville,

N. C., recently damaged by fire, will be rebuilt. W. H. Russell is proprietor.

The Young-Tucker Mfg. Co., Darlington, S. C., will receive prices on machine tools.

Plans to establish a two-story repair, forging and welding plant to cost \$10,000 are being made by Drennon & Zahn, Marietta and Mills streets, Atlanta, Ga.

The Towers-Sullivan Mfg. Co., Rome, Ga., is in the market for foundry equipment for a one-story foundry it plans to establish.

The Soar Corporation, Dade City, Fla., will receive prices on lathes, drills, etc.

Indianapolis

INDIANAPOLIS, March 15.

The Champion Potato Machinery Co., Hammond, Ind., contemplates erecting an addition, about 125 x 150 ft., in which its automobile business will be housed; this will give more room for expansion of its output of tilling machines. The name of the company will also be changed to the Champion Corporation. There will be no change in the personnel of its officers or working force.

The Wainwright Engineering Corporation, Connerville, Ind., has increased its capital stock from \$200,000 to \$750,000.

The Gale Motors Corporation, Indianapolis, has been organized with \$350,000 capital stock and has opened offices at 409 Traction Terminal Building. Gard Gale is president. A plant will be built in Indianapolis.

The plant of the George Cutter Co., South Bend, Ind., has been sold to the Westinghouse Electric & Mfg. Co. It manufactures street lighting devices.

E. C. Atkins & Co., saw manufacturers, Indianapolis, have leased a four-story, brick building adjoining their plant to enlarge their manufacturing facilities.

The Hoosier Rolling Mill Co., Terre Haute, Ind., has acquired a 150-acre tract near that city where it contemplates the erection of a \$3,000,000 plant.

The International Engineering & Mfg. Co. will establish a plant at Kokomo, Ind., at an estimated cost of \$100,000, for the manufacture of electric lighting and power plant equipment.

The Columbia Safety Appliance Co., Columbia City, Ind., has been incorporated with \$500,000 capital stock by Thomas L. Hildebrand, Ernest Cotterly and John W. Adams.

Chicago

CHICAGO, March 15.

Reports of sellers regarding the volume of current business are conflicting. Whereas some local agencies have booked encouraging orders the past week, other dealers state that business is decidedly slow. None of the expected railroad purchases has yet materialized and only one new list has appeared, a small one issued by the Chicago Junction Railway, calling for a 54-in. boring mill, an 80-in. wheel lathe, an 18-in. slotter and a 16 or 18-in. engine lathe. The Chicago, Milwaukee & St. Paul, however, is expected to enter the market soon with an attractive inquiry. The Chicago & Northwestern is preparing a list, but is not expected to place it before the trade for some time.

Despite the deliberation of the carriers, the market is not without features. The Griffin Wheel Co. is inquiring for about \$30,000 worth of tools for its new Council Bluffs, Iowa, plant. The list includes a heavy duty double axle lathe, a wheel press, a 35-in. boring mill, a 24-in. engine lathe, a 24-in. shaper, a 28-in. and a 34-in. upright drill, all motor-driven. A motor truck manufacturer in Wisconsin is in the market for \$20,000 worth of equipment.

Heavy equipment, particularly lathes, seems to be moving more freely than for some time. One local dealer recently booked orders for five motor-drive engine lathes, ranging from 36-in. swing to 48-in. The Steel & Tube Co. of America is in the market for a 48-in. x 20 ft. machine. A Cincinnati manufacturer of heavy lathes is well booked, whereas a few months ago its business was slack.

The cautious hand of finance is in evidence here and there and has caused a suspension or curtailment of purchases by some industries. The local packers, for instance, have discontinued buying machine tools for their many plants in this country and abroad.

Slow deliveries from manufacturers are still serious problems for the dealers. In February shipments to a prominent machinery house were equal to only one-fourth of the new business booked. One dealer, however, reports that the cancellation of export business has enabled some manufacturers to catch up on their domestic commitments.

The Phoebe Mfg. Co., manufacturer of hardware supplies, 5712 West Twelfth Street, Chicago, has awarded a contract for the construction of a one-story addition, 115 x 218 ft., to cost \$50,000.

The Block Mfg. Co., manufacturer of sheet metal goods, 1219 West Lake Street, Chicago, is receiving bids through an architect on a two-story plant, 95 x 112 ft., to be erected at Fulton and North Wood streets at a cost of \$60,000.

The Joliet Railway Supply Co., 4052 Princeton Avenue, Chicago, has let a contract for a one-story storage warehouse, 130 x 200 ft., at 947-951 East Ninety-third Street. This is the first unit of a plant to be built on a vacant site, 275 x 990 ft., at Ninety-third Street and Greenwood Avenue, purchased from the National Malleable Castings Co.

The Hendrickson Motor Truck Co., Thirty-sixth Street and Wabash Avenue, Chicago, has let a contract for a one-story plant, 49 x 83 ft., at 18-24 East Thirty-sixth Street, to cost \$9,000.

The Herstle Brothers Co., 500 North Wells Street, Chicago, manufacturer of bakery supplies, has let contract for a three-story plant and office building, to be built at the same address, at a cost of \$18,000.

The Reliable Electric Co., manufacturer of electrical goods, 411 South Sangamon Street, Chicago, has let contract for the erection of a one-story factory at 3133-53 Carroll Avenue, to cost \$40,000.

The Union Depot Freight Co., 1746 North Kostner Avenue, Chicago, has awarded a contract for the erection of a one-story blacksmith shop, 65 x 160 ft., to cost \$25,000.

The Otto Sellow Mfg. Co., manufacturer of automobile bodies, 2730 Elston Avenue, Chicago, has let contract for a one-story plant, 63 x 97 ft., to cost \$19,000.

The Steel Fabricating Co., manufacturer of ready-made sectional steel factory buildings, 38 South Dearborn Street, Chicago, has purchased a 5-acre plant, consisting of one and two-story buildings, in Harvey, Ill.

The Locomotive Crane Co. of America, 3609 South Ashland Avenue, Chicago, has purchased the plant of the Drop Forge Co., Champaign, Ill., which it will utilize for the manufacture of road building machinery and locomotive cranes.

The Sheet Steel Products Co., manufacturer of steel seat, dash and cab equipment for automobile cabs and trucks, is constructing a two-story plant, 145 x 320 ft., in Michigan City, Ind. The company is moving there from Byran, Ohio.

The Edwin Pratt Sons Co., Kankakee, Ill., is planning for the erection of a one-story, brick and steel foundry, to cost about \$50,000. Charles Pratt is president.

The White Lily Mfg. Co., Davenport, Iowa, manufacturer of electric washing machinery, has completed arrangements for the erection of a new one-story plant on Rockingham Road, with main building 80 x 225 ft., and several smaller structures, to cost about \$150,000.

The Superior Washing Machine Co., Sterling, Ill., has had plans prepared for extensions and improvements in its three-story plant, 130 x 156 ft., to cost about \$15,000.

The Hy-Speed Wrench Co., Chicago, a subsidiary of the American Wrench Co., 189 North Clark Street, has awarded contracts for the erection and completion of its new plant at Cicero, Ill. It will be 125 x 125 ft., is estimated to cost \$50,000.

The Seng Co., 1415 Dayton Street, Chicago, manufacturer of hardware products, has awarded a contract to the American Bridge Co., 208 South La Salle Street, for its proposed new plant at Crawford Avenue and Diversey Boulevard, to comprise a number of buildings, one, two, three and four-stories. The plant, with equipment will cost about \$1,500,000. Davidson & Weiss, 53 West Jackson Boulevard, are the architects.

The Trefry Motor Co., 1014 Kansas Avenue, Topeka, Kan., has had plans prepared for a two-story service building and repair works, 25 x 150 ft., to cost about \$100,000.

Cleveland

CLEVELAND, March 15.

The lull in demand for machinery which developed two or three weeks ago continues. Dealers are doing a fair volume of business in single tools, but round lot orders and inquiries are lacking. The Columbia Axle Co., Cleveland, has deferred temporarily the carrying out of its plans for the erection of a new plant, but it is expected that this will go through shortly and that a large amount of machinery will be purchased. A list of its requirements was prepared recently. The Holt Mfg. Co., Peoria, Ill., is inquiring of local dealers for a number of new or used machines, which include a 24-in. Ingersoll cutter grinder, No. 4 Warner & Swasey universal screw machine, two Rockford horizontal tapping, boring and drilling machines, No. 6 Toledo or its

equivalent open-back inclined press, and a No. 7120 Niagara power squaring shear. The Economy Baler Co., Ann Arbor, Mich., is inquiring for a circle and slitting shear with $\frac{1}{4}$ -in. capacity, a 42-in. vertical boring mill and a No. 2 or 2 $\frac{1}{2}$ universal milling machine.

The Champion Engineering Co., Kenton, Ohio, has been refinanced and extensions will be built which will more than double the present capacity. More than \$1,000,000 will be expended and the plant will be devoted exclusively to the manufacture of electric traveling cranes.

The Kenton Hardware Co., Kenton, Ohio, will enlarge its plant by the erection of an addition to its foundry, 60 x 190 ft. A new 60-in. cupola will be built. Construction work will start in the spring.

The National Acme Co., Cleveland, has had plans prepared for an extension to its Coit Avenue machine screw products plants, which will cover over two acres of floor space. When completed the company will have over 10 acres of space under one roof.

The Buckeye Brass & Mfg. Co., Hawthorne and Ashland avenues, Cleveland, will erect an extension, 120 x 200 ft.

The Bucyrus Malleable Castings Co., Bucyrus, Ohio, recently incorporated with a capital stock of \$200,000, will erect a plant, 74 x 300 ft., contract for which has been placed. The company has effected its organization by the election of J. C. Ackerman, president and general manager; R. V. Sears, vice-president; M. R. Ackerman, secretary, and Henry W. Wyss, treasurer. J. C. Ackerman was formerly connected with the Carroll Foundry & Machine Co., Bucyrus, and recently has been with the Marion Malleable Iron Co., Marion, Ohio.

The Toledo Washer & Stamping Co., Toledo, Ohio, will move into larger quarters in a building recently occupied by the High Speed Tools Corporation, 16-20 Broadway. To take care of the extension it has increased its capital stock from \$15,000 to \$50,000.

The Arbuckle-Ryan Co., Toledo, Ohio, has increased its capital stock from \$200,000 to \$400,000 and will erect a two-story factory, 80 x 130 ft., on East Broadway for use in rebuilding farm machinery.

The Deshler Foundry & Machine Co., Deshler, Ohio, will build a factory for the manufacture of laundry machines, motors and gasoline engines.

The Kenney Foundry & Mfg. Co., Mansfield, Ohio, will rebuild its plant which recently burned. It will include a foundry, machine shop, pattern shop and power house.

The Martin Steel Products Co., Mansfield, Ohio, contemplates the erection of a one-story addition, 100 x 300 ft.

The Maibohn Motors Co., Sandusky, Ohio, is planning for a one-story addition, 100 x 700 ft.

The Canton Rim Co., Canton, Ohio, has increased its capital stock from \$100,000 to \$500,000 and will enlarge its Louisville, Ohio, plant and install additional equipment.

Cincinnati

CINCINNATI, March 15.

Machine tool builders, who reported a falling off in inquiries the past month, state business is picking up again. While no heavy inquiries have been received the past week, orders for one and two machines have been booked with such frequency as to give them confidence that their plants will be able to run steadily well into the latter part of the year. It is reported that the Chicago & Northwestern Railroad has issued a list, calling for about \$50,000 worth of machine tools. This list has not been received here as yet, but the Chicago agent of one local manufacturer has wired asking for best deliveries. Several Chinese, Japanese and Holland manufacturers visited Cincinnati the past week, and made the rounds of the machine tool builders. It is understood that the Japanese, whose visit was connected with purchases made here some time ago, have asked for prices and deliveries on 40 lathes and 15 milling machines and if these are satisfactory an order will be placed later. These foreign representatives are understood to have purchased a number of tools at other centers during their tour. An engine lathe manufacturer reports that the past week he booked an order from Argentine interests for several tools. While the railroads generally have not yet entered the market, many are reported to have lists in preparation which are expected to be out within the next few weeks.

The John B. Morris Foundry Co., Harriet Avenue, Cincinnati, has awarded the contract to the Ferro-Concrete Construction Co. for an addition to its plant to cost \$10,000.

The National Drop Forging Co., Dayton, Ohio, has been incorporated with a capital stock of \$100,000 by D. C. Anderson and E. B. Lamb.

Ernest Boehme, formerly with the General Motors Cor-

poration; Morris Larkin, Larkin Supply Co.; Lee Warren James, Winters National Bank, and Louis Ruthenburg, all of Dayton, have acquired a large block of common stock of the Dayton Fan & Motor Co., Dayton, Ohio, and in addition have subscribed one-third of a new issue of preferred, giving them control of the company. Mr. Boehme has been elected president of the company.

The Norwood Sash & Door Mfg. Co., Cincinnati, will erect a two-story addition, 58 x 103 ft., to its plant at the corner of Ross Street and Section Avenue, Norwood. Tietig & Lee, architects, are taking bids.

The Globe Register Co., Cincinnati, has acquired property at the corner of Reading Road and Morgan Street, and while no plans have been announced, it is understood that extensions are contemplated.

The Elmwood Castings Co., Cincinnati, whose plant was recently badly damaged by fire, has engaged Frank H. Chase, Chicago, to prepare plans for rebuilding. It is expected that the plant will be ready for operation by April 15.

The Federal Tool & Machine Co., Dayton, Ohio, has increased its capital stock from \$25,000 to \$35,000. It is reported that an extension is contemplated to take care of increasing business.

The Multi-Colored Type Co., Middletown, Ohio, has purchased the former plant of the R. K. LeBlond Machine Tool Co. at Cincinnati, and will move into it in about three months. It is now being used as a storage warehouse by the United States Ordnance Salvage Board. The purchase price is said to have been \$350,000.

The Allsteel Ridewell Tire & Rubber Co., Dayton, Ohio, will erect a three-story steel and brick factory in North Dayton. A. Huetter is president. The Osborn Engineering Co., Cleveland, is preparing the plans.

The Thomas & Armstrong Co., London, Ohio, sheet metal manufacturer, will erect two factories and an office building. One structure 50 x 100 ft., will house the tin shop, while the manufacturing shop will be 62 x 200 ft. The office building will be two-stories, 40 x 50 ft.

The Dairy Engineering Co., Dayton, has in contemplation the erection of a plant to cost in the vicinity of \$800,000. Plans have not yet been completed, but it is expected that construction will commence some time this year. The company is now located in the Beaver Power Building. George H. Young is president.

The State Construction Co. has been awarded the contract for an extension to the plant of the Columbus Heating & Ventilating Co., Columbus, Ohio, at a cost of \$35,000.

The Martin Steel Products Co., Mansfield, Ohio, has awarded a contract to Simon Small & Son, Bird Building, for a one-story addition, 100 x 300 ft., on Longview Avenue, and estimated to cost about \$90,000. Carl Oberlin is general manager.

Fire, March 8, partially destroyed the plant of the National Brass & Copper Co., Lisbon, Ohio, with loss estimated at \$100,000.

The Hughes-Keenan Co., Newman Street, Mansfield, Ohio, is having plans prepared for a one-story shop, 140 x 140 ft., to be used for structural steel production and working, estimated to cost \$40,000. Arthur Hughes is vice-president.

Milwaukee

MILWAUKEE, March 15.

Automotive shops in the Central West are providing a steady stream of single tool and small lot business for local machine tool builders, who are sold up to the limit and compelled to extend delivery dates. Milling machine makers are quoting July and August delivery on most sizes and types. The labor situation continues unfavorable in respect to the procurement of both skilled and unskilled help, which makes it extremely difficult to increase production. Good inquiry is coming from railroad supply shops and some orders are developing.

The Wehr Steel Co., Milwaukee, has purchased the plant and business of the Andrews Motor Mfg. Co., 834 Muskegon Avenue, which originally manufactured rowboat engines but for some time has been doing a jobbing business. The new owner is not ready to announce the disposition it will make of the shop. The Wehr foundry at Forty-fifth Avenue and Gordon Place is erecting a 60-ft. addition to the cleaning room and has purchased new sand blast equipment and a 10-ton crane which will be furnished by the Milwaukee Electric Crane & Mfg. Co.

The Creamery Package Mfg. Co., Chicago, has plans for a 75-ft. extension to the foundry at its branch works in Lake Mills, Wis., which will be equipped for brass casting.

The Metal Forms Corporation, 1440 Booth Street, Milwaukee, has increased its authorized capital stock from \$75,000 to \$150,000. It manufactures steel forms for cement

and concrete construction purposes. L. M. Moss is secretary and general manager.

The Clarotto Mfg. Co. of Milwaukee is a new corporation organized with an authorized capital stock of \$1,000,000 by O. G. Pfeifer, Thomas C. Hanson and W. A. Kuebler, 3803 North Avenue. It will engage in the manufacture of gasoline engines, motor vehicles, parts and accessories. Further plans are not available at present.

The Milwaukee Gear Co., 2021 Walnut Street, Milwaukee, has purchased an existing building at Third and Chambers streets, which will be remodeled at a cost of \$10,000 for machine shop purposes. Some new tool and other equipment will be purchased at once. Henry F. Trester is secretary.

The Oshkosh Motor Truck Co., Oshkosh, Wis., has purchased 35 acres at Twenty-fifth and Oregon streets for its proposed new manufacturing group. Work will begin April 1 on the erection of a one-story brick and steel machine shop and assembling floor, 80 x 320 ft., and an office building, 40 x 60 ft. Inquiry is being made for additional equipment. B. A. Mosling is secretary.

The Milwaukee Press & Machine Co., formerly the Mechanical Equipment Co., Milwaukee, is negotiating for a site for its proposed new machine shop, which will cost about \$50,000. It was established six months ago to make tools, dies, jigs, fixtures, etc., and is now developing a line of machine tools. A punch press is now in production on a commercial scale. Pending the erection of a new plant, the operation is being conducted in the Montgomery Building, 129 Michigan Street. Griffith W. Johnstone is secretary and treasurer.

The Board of Education, Ashland, Wis., has engaged Henry Wildhagen, local architect, to design a manual arts building costing about \$100,000 as an addition to the Ashland high school. Bids will be taken about April 15. Complete equipment for manual training shops will be purchased.

The Wisconsin Tool & Supply Co., Enterprise Building, Milwaukee, has been acquired by Harry E. Jacobs, Edward J. Waltzer and William H. Lawton, who will continue the business as a manufacturer of tools, dies, jigs and other mechanical appliances. The same interests also have taken over the Kettelson Machine Co., Enterprise Building, manufacturer of roofing cleats. Messrs. Jacobs and Waltzer conduct a scrap metal business at 256-258 Reed Street. Mr. Lawton will act as general manager of the new interests.

The West Bend Equipment Co., West Bend, Wis., manufacturer of steel barn appliances and farm accessories, has increased its capital stock from \$125,000 to \$175,000 by making an issue of \$50,000 preferred stock. It is completing work on a factory addition and installing considerable new machinery.

The Drew Carrier Co., Waterloo, Wis., and the Aspinwall Mfg. Co., Jackson, Mich., have been consolidated as the Aspinwall-Drew Co. with a capital stock of \$1,000,000. The Waterloo plant has been manufacturing litter carriers and barnyard equipment for 20 years, and the Jackson company has been making potato machinery for 37 years. It has a branch works at Guelph, Ont. C. E. Shomo, vice-president and general manager, has moved to Madison, Wis.

The F. W. B. Achen Co., 155 Oneida Street, Milwaukee, will take bids about March 27 for the erection of a two-story sales and service building, 120 x 150 ft., at Oneida and Jackson streets, to cost \$95,000. A machine and repair shop, 60 x 120 ft., is provided by the plans. The building will be occupied by the Achen Motor Car Co., distributor of the Chandler and Cleveland.

The A. J. Lindeman & Hoverson Co., First and Cleveland avenues, Milwaukee, has increased its capital stock from \$200,000 to \$400,000 to finance enlargement of the plant and business. It manufactures stoves and ranges. A. J. Lindemann is president and general manager.

The Board of Education, Eagle River, Wis., has been authorized to engage an architect to prepare plans for a new high school, with manual training department, which will cost about \$100,000. H. E. Marshall is superintendent.

The Appleton Wonder Dry Heat Co., Appleton, Wis., has been chartered to manufacture copper and aluminum food receptacles with chemical action to create heat. The capital stock is \$150,000 and the incorporators are Alfred A. Archibald and George E. Lutsey.

The Acme Galvanizing & Tinning Co., Milwaukee, is the new style adopted by the Acme Galvanizing & Sales Co., Reynolds and Wilcox streets. H. J. Eslow is secretary.

The A. E. Martin Foundry Co., 705 Park Street, Milwaukee, has awarded contracts for the erection of a \$35,000 addition to its gray iron shop. It specializes in cylinder and piston castings for the automotive industries.

Oscar Peterson, 756 Pomeroy Street, Kenosha, Wis., is purchasing equipment for a two-story brick and concrete garage and repair shop, 60 x 122 ft., work upon which started March 8.

The Moe-Bridges Co., 60-64 Third Street, Milwaukee, manufacturer of electrical fixtures, has increased its capital stock from \$40,000 to \$100,000. It contemplates the erection of a new plant during the spring and summer. Henrik Moe is general manager.

The Milwaukee-Wisconsin Motor Co., Milwaukee, has been incorporated with a capital stock of \$100,000 to manufacture motor cars, trucks, tractors, engines, parts, etc. The incorporators are Herman E. Rosenbaum, Robert E. Meissner and Harry V. Meissner, attorney, 209 Grand Avenue.

The Board of Education, Manitowoc, Wis., has accepted the plans of Perkins, Fellows & Hamilton, Chicago, for the proposed new high school, estimated to cost \$1,640,000. The first unit, costing \$750,000, will be erected this year. A manual training shop will be established in a wing of the main building.

St. Louis

St. Louis, March 15.

The Hudson-Frampton Motor Car Co., St. Louis, has leased 54,000 sq. ft. of ground and will erect a machine shop and service building to be maintained apart from its sales station.

The Riverside Packing Co., Oklahoma City, Okla., is in the market for about \$35,000 worth of equipment to replace that recently destroyed by fire.

The Shearman Concrete Pipe Co., Little Rock, Ark., R. S. Lander, Knoxville, Tenn., president, will equip a plant and install about \$15,000 worth of machinery in addition to that already bought.

The Lima Gin & Investment Co., Lima, Okla., is in the market for about \$25,000 worth of ginning and power plant equipment.

The Harry Benjamin Equipment Co., Central National Bank Building, St. Louis, is in the market for two 60-ft. standard gage turntables with equipment.

The Rainbow Mining & Milling Co., Mena, Ark., is in the market for one 85-hp. oil engine.

E. B. Rankin, 508 South Division Street, Sapulpa, Okla., will equip a 1500-bbl. oil refinery at Claremore, Okla.

The G. W. Sims Ice Co., Simsboro, Ark., will equip a \$30,000 ice-making plant.

W. S. Green, Carlyss, La., will install crude oil engines and pumps for a 3000-acre irrigation plant.

J. T. Tice & Co., Inc., Lagrange, La., has been incorporated with a capital stock of \$25,000 by J. T. Tice, H. W. Caudle and W. R. McCall to manufacture machinery.

The Dorris Motors Corporation, Sarah and Laclede streets, St. Louis, has had plans prepared for a new three-story plant, 180 x 200 ft., on Forest Park Avenue, to cost about \$300,000, including equipment. The Wiedmer Engineering Co., Syndicate Trust Building, is the architect.

Detroit

DETROIT, March 15.

The C. M. Hall Lamp Co., Hancock and Rivard streets, Detroit, manufacturer of automobile lamps, has completed plans for a two-story addition, 100 x 172 ft., to cost about \$175,000, including equipment.

The American Cash Register Co., Saginaw, Mich., has increased its capital from \$1,730,000 to \$2,250,000.

The Athol Mfg. Co., Athol, Mass., manufacturer of pneumatic rubber products, has awarded a contract to Walbridge & Aldinger, Penobscot Building, Detroit, for the erection of a new plant at Marysville, Mich.

The Hayes Wheel Co., Albion, Mich., manufacturer of automobile wheels, is planning for enlargements in its local plant. It will also increase the output at its works at Jackson and St. Johns, Mich., and Anderson, Ind.

The new plant to be erected by the General Aluminum & Brass Mfg. Co., East Grand Boulevard, Detroit, at Marysville, Mich., will be equipped as a foundry. The structure will be one story, 380 x 420 ft., and is estimated to cost in excess of \$150,000.

The Palge-Detroit Motor Car Co., Detroit, has commenced the erection of a one-story addition, 275 x 530 ft., on Warren Avenue, near Lonyo Road, to be equipped as a machine shop and for general production.

The Industrial Foundry Co., St. Johns, Mich., will erect a new plant, 100 x 135 ft., which will increase the daily output from 12 to 50 tons of castings. The officers are: President, John Spousta; vice-president, C. E. Cullum; secretary and treasurer, Joseph J. Silhavy.

Arrangements have been made by the Union Steel Products Co., Albion, Mich., whereby the Parker Collapsible Rim

Corporation will move from Chicago to occupy part of the factory of the former concern.

The J. W. Murray Mfg. Co., Detroit, has purchased for \$200,000 the plant of the General Spring & Wire Co. on Marston Avenue for expansion purposes.

Ground has been broken for the new plant of the Dort Motor Car Co. at Flint, Mich., and the building will be ready for operation in August. This will be the first unit of the new organization of the Dort company, which will eventually cover more than 70 acres.

Louisville

LOUISVILLE, March 15.

The Kentucky Tire & Rubber Association, Realty Building, Louisville, recently incorporated with a capital stock of \$1,000,000, has had plans prepared for a one-story plant, 60 x 400 ft. Construction will begin before the end of March. W. R. White is vice-president.

The Atlantic Tank & Barrel Co., Eighteenth and Magnolia streets, Louisville, has completed plans for a one-story addition, 65 x 130 ft., to cost about \$25,000.

The United Casket Co., Louisville, recently incorporated with a capital stock of \$300,000, is arranging for the erection of a one-story and basement plant, 100 x 450 ft. Offices have been established in the Kentucky Title Building. Gerard Zimmerman is president.

The proposed new plant of the Southern Automobile Mfg. Co., 117 Linden Avenue, Memphis, Tenn., recently organized, will consist of a two-story works, 100 x 300 ft., with wing, 100 x 200 ft. It will cost about \$250,000, including machinery, and it is proposed to develop an output of 20 automobiles a day. W. A. King is president and general manager. Regan & Weller, Bank of Commerce Building, are the architects.

The Tri-State Armature Works, 252 Vance Avenue, Memphis, Tenn., recently organized, is planning for the establishment of works for the manufacture of electrical machinery. A repair department will also be equipped. The company has a capital of \$50,000. W. S. Gaden is president, and R. A. Reed, manager.

B. F. Avery & Sons, Eleventh Street, Louisville, manufacturer of agricultural implements and machinery, have completed plans for two five-story additions, 127 x 260 ft.

The Preston Motors Corporation, Birmingham, Ala., has increased its capital stock from \$1,000,000 to \$10,000,000 and is arranging for the erection of a one-story works, 350 x 700 ft., including an electric power plant.

The William J. Oliver Mfg. Co., Knoxville, Tenn., is planning for extensions and improvements at its plant to cost about \$100,000. A new steel foundry will be erected and the present iron foundry increased in capacity; an addition will be built to the pattern shop. The extensions will be used for the manufacture of tractor parts, and the machinery installation is estimated to total \$40,000.

C. Von Allmen, Thirty-fourth and Bank streets, Louisville, has secured permit for erection of a boiler plant.

Fred S. Lack, Paducah, Ky., is interested in a new company with a capital stock of \$500,000, which will establish a metal-working plant to manufacture Lamco Multidisc automobile wheels of aluminum. It plans to install stamping and other machinery.

The Roy C. Wayne Co., 608 West Jefferson Street, Louisville, is in the market for a $\frac{1}{2}$ or $\frac{3}{4}$ -yd. Erie steam shovel, which must be of a late model and in good condition.

A plant will be equipped at Hopkinsville, Ky., by the Edwards Dust Spraying Machine Co., which has been incorporated with a capital stock of \$4,000 by R. E. Cooper, J. Arthur Wallace, and others.

Texas

AUSTIN, March 15.

Fire, Feb. 26, destroyed a portion of the plant of the Hill County Cotton Oil Co., Hillsboro, Texas, with loss estimated at \$100,000, including equipment.

The Victor Oil, Gas & Refining Co., Dallas, is planning for the erection of a new refinery in the vicinity of Hillsboro, to cost about \$250,000. It will have an initial capacity of about 1000 bbl. a day. E. G. Kempner is manager.

The Wharton Motors Co., Dallas, has been incorporated in Delaware with capital stock of \$5,000,000 by Thomas P. Wharton, M. Troy and L. S. Tone, all of Dallas, to manufacture automobiles.

George Ople, 116 East Houston Street, Sherman, Tex., is planning for the erection of a one-story plant, 50 x 100 ft., for the manufacture of tin and metal products, including fans, elevator equipment, etc.

D. J. Woodward, San Antonio, and associates, have acquired the former radio aviation school of the War Department, known as Penn Field, at Austin, with adjoining land aggregating 60 acres, and a company is being organized with a capital stock of \$500,000 to establish a motor truck manufacturing plant. Mr. Woodward will head the company.

The Packard-Dallas Motor Car Co., Dallas, has plans under way for the erection of a service building and parts manufacturing works, 118 x 128 ft., to cost about \$75,000, including machinery. Alexander D. Hudson is president and manager.

The Mt. Belvieu Iron Works, Mont Belvieu, Tex., recently organized to manufacture iron products, is planning for the erection of works, 30 x 60 ft., to be equipped with lathes, drill press, bolt machine, etc. A. M. Bullard is president and general manager.

The Drilling Specialty Co., Houston, has been incorporated with a capital stock of \$100,000 by Fred Ankerman and M. G. Lignoski, to manufacture drilling tools for oil operations, tool joints, etc.

S. D. Myers, Sweetwater, will establish a saddlery manufacturing plant at El Paso at a cost of about \$100,000.

The Pacific Northwest

SEATTLE, March 8.

The steel shipyards which have established drydocks and repair plants are rushed with work and several orders have been placed recently for converting and repairing Japanese-built steamships. Canning and fishing fleets are being overhauled, and this has also created considerable activity at local plants.

Demand from the Orient, Peru and South America for engines and various kinds of machinery is exceptional, and one local manufacturer of oil engines, whose plant is booked to capacity up to June 1, has been forced to refuse considerable business offered.

The Spokane Woodworking Co., Spokane, has purchased the plant of the Inland Mill & Mfg. Co. Improvements costing \$10,000 will be made, including machinery installation.

The Everett Steel Co., Everett, Wash., has purchased additional property near its plant, which will be used later for extensions. It makes steel castings.

The Consolidated Mining & Smelting Co. of Canada, Nelson, B. C., plans the erection of two additions. A mill, costing \$200,000 for the manufacture of copper rods, will be built, and the capacity of the copper refinery will be increased to 50 tons daily.

The Tacoma Planing Mills, Tacoma, has increased capital stock from \$10,000 to \$45,000, the new capital to be used in improvements and extensions to their plant.

The central power plant at the Puget Sound Navy Yard, Bremerton, Wash., is to be enlarged by an addition costing \$50,000. A compressor will be installed.

The Majestic Furnace Mfg. Co., Seattle, will equip a new plant at Terry and Mercer streets for the manufacture of pipeless furnaces.

The Colville Valley Lumber Co., Colville, Wash., recently organized with a capital stock of \$30,000, plans the establishment of a lumber finishing and manufacturing mill. George M. Barline is president.

The Okanogan Valley Water Users' Association, Wenatchee, Wash., has commissioned D. C. Henry, engineer, Portland, to prepare plans for a steam pumping plant for irrigation purposes. The pumps to be installed will have a capacity of 25,000 gal. per min.

The Grays Harbor Lumber Co., Aberdeen, Wash., is completing plans for its proposed new sawmill in the vicinity of Vancouver. It will employ 1000 men.

The International Portland Cement Co., Portland and Vancouver, plans the expenditure of \$100,000 for additional machinery at its Lakeview quarries. J. S. Irwin is president.

California

LOS ANGELES, March 8.

C. A. Hennense, Vallejo, Cal., and W. J. Hensen, San José, are organizing a company with capital stock of \$500,000 to manufacture farm tractors, and have secured options on the plant of the Liberty Iron Works, Sacramento, which will be utilized for this product.

The Pacific Iron Co., Los Angeles, has been incorporated with a capital stock of \$1,000,000 by J. Boyd Oliver, Charles McLaughlin, C. O. Greever and H. R. Sherry, all of San Francisco, to manufacture iron and steel products.

The Shell Oil Co., Los Angeles, is planning for the erection of a new refinery in the vicinity of Ventura, Cal., to cost about \$60,000.

The Central Brass Foundry Co., 1055 East Fortieth Street, Los Angeles, has filed notice of organization to manufacture brass and bronze products. Charles Francis, 1039 East Forty-second Street, heads the company.

The National Axle Co., Chamber of Commerce, San José, Cal., has awarded contract to the Austin Co., Pacific Building, San Francisco, for the erection of its new plant at Luna Park, 90 x 360 ft., to cost about \$60,000. J. G. Travares is president.

The Sespe Light & Power Co., 305 Merchants Trust Building, Los Angeles, has increased its capital stock from \$1,000,000 to \$2,000,000, and has created a bonded indebtedness of \$10,000,000 for proposed extensions and improvements.

The Motor Products Corporation, Los Angeles, has been incorporated with a capital stock of \$100,000 by C. C. Bogardus, M. F. O'Dea and J. R. Morton, to manufacture automobile motors, parts, etc.

The Johnson Electric Washer Co., Emeryville, Cal., has completed plans for the erection of a one-story, brick and steel plant, 120 x 235 ft., to cost about \$40,000.

The Armstrong-Watson Co., Los Angeles, has been incorporated with a capital stock of \$200,000 by Henry I. Armstrong, Long Beach; Alexander Watson and Andrew Laidlaw, Los Angeles, to manufacture pumps and pumping machinery.

The Visalia High School District, Visalia, Cal., is having plans prepared for the erection of a new manual training school, including machine shop work, foundry practice, and other mechanical production. Bonds for \$110,000 have been voted. Swartz & Ryland, Rowell Building, Fresno, Cal., are the architects.

The Pacific Welding & Mfg. Co., 935 South Grand Avenue, Los Angeles, has filed notice of organization to manufacture welding equipment and similar specialties. Chauncey W. Tetwill, 1173 West Twenty-eighth Street, heads the company.

Canada

TORONTO, March 15.

T. L. Church, chairman, Board of Control, Toronto, will receive bids until April 20 for a centrifugal sewage pump of 40,000,000 Imperial gal. per day capacity. For specifications, address room 12, City Hall.

J. C. Holden, district engineer Canadian Pacific Railway, 305 C. P. R. Station, Winnipeg, Man., will call for bids at an early date for extensions to the freight car shops at Winnipeg. He will also prepare plans for 280-ton coal dock at Fort William, Ont., and 100-ton coal docks at Raith, Ont., Austin and Napinka, Man.

The Eclipse Counterbore Co., Ltd., Walkerville, Ont., has been incorporated with a capital stock of \$40,000 by Wesson Seyburn, Roy G. Mitchell, Charles Wright, Jr., and others, to manufacture counterbores, lathes, drills, drill presses, reamers, chucks, cutters, etc.

The foundry owned by M. J. A. Despardins, Rigaud, Que., was destroyed by fire recently with a loss of \$65,000. It is expected that it will be rebuilt immediately.

The Federal Asbestos Co., Robertsonville, Que., will rebuild its mill, recently damaged by fire, and will require new equipment.

The electrical warehouse of the Dominion Steel Corporation, Sydney, N. S., was destroyed by fire, March 8, with a loss of \$100,000 in building and contents.

The car barns owned by the Cape Breton Electric Co., Sydney, N. S., destroyed by fire March 7, with a loss of \$50,000, will be rebuilt.

The Canada Brass Co., 162 Craig Street West, Montreal, is in the market for a 22-in. spinning lathe.

The Dominion Welding Mfg. Co., 576 St. Timothee Street, Montreal, will erect a new plant on its present site to take care of increasing business. It plans also to go into the manufacture of water heaters.

The McCormick Machinery Co., Montreal, has leased a two-story brick building at 58 Prince Street, for a storage warehouse. A portion of the ground floor will be reserved for a machine shop for repairing and rebuilding used equipment. The company will shortly remove its offices from 30 St. John Street to the warehouse.

The Metal Shingle & Siding Co., Ltd., Preston, Ont., is in the market for a Bliss No. 21B press or equivalent.

The St. Marys Wood Specialty Co., St. Marys, Ont., is in the market for a Cameron boiler feed pump, capacity for 100-hp. boiler.

The Sarnia Bridge Co., Ltd., Sarnia, Ont., has been incorporated with a capital stock of \$500,000 by Roy M. Norton and Harry B. Fenton, of Port Huron, Mich.; Henry F. Holland and Henry M. Pardee, of Sarnia, Ont., and others.

The Hepworth Silica Pressed Brick Co., Hepworth, Ont., is refitting its plant to handle increased business.

The Moncrief Furnace & Mfg. Co., Ltd., Guelph, Ont., has been incorporated with a capital stock of \$50,000, by Elmo S. Moncrief, Cleveland, Ohio; Wellington J. Shibley, John R. Howitt and others of Guelph, to manufacture furnaces, stoves, radiators, etc.

The British Canadian Machine & Tool Co., Ltd., which has been formed with a capital stock of \$500,000, has taken over the International Machine & Tool Co. and the Reliance Motor & Tool Co., and is now carrying on business at 183 George Street and 111 Adelaide Street, Toronto. It is contemplating the erection of a manufacturing plant in the city. The directors are Thomas L. May, Harry A. Newman and John G. Baukat.

The Standard Tube & Fence Co., Ltd., Woodstock, Ont., has acquired the Canadian patents of Marshall B. Lloyd covering acetylene and electric welded tubing and has also formed a working arrangement with the Standard Parts Co., Cleveland, Ohio, to manufacture in Canada many of the latter's line of welded products. The company is installing equipment to carry out this undertaking, and is also contemplating adding to its plant.

Simmons, Ltd., Montreal, has been incorporated with a capital stock of \$500,000 by William S. Morlock, 85 Bay Street; Sydney E. Wedd, 162 Jameson Avenue; Roy B. Whitehead and others, all of Toronto, to manufacture metal beds, furniture, etc.

The Ingersoll Machine & Tool Co., Ltd., Ingersoll, Ont., has been incorporated with a capital stock of \$1,000,000 by James L. Ross, 72 Isabella Street; Arthur W. Holmsted, room 43, 20 King Street East, and others.

The Canadian Metal Window & Steel Products, Ltd., Toronto, has been incorporated with a capital stock of \$250,000 by Gerald M. Malone, Toronto General Trusts Building; Frederick L. Whitley, 434 Manning Avenue, and others.

The Purdy Co., Ltd., Oshawa, Ont., has been incorporated with a capital stock of \$40,000 by Norman W. Purdy and Robert E. Jones, Orillia, Ont.; Russell B. Hern, Huntsville, Ont., and others, to manufacture sheet-metal products, etc.

The Kales Stamping Co., Ltd., Walkerville, Ont., has been incorporated with a capital stock of \$50,000 by William R. Kales, James T. Whitehead, Walter J. Leitheiser and others, all of Detroit, Mich., to manufacture sheet-metal stampings, automobile parts, etc.

Moffats, Ltd., Toronto, has been incorporated with a capital stock of \$1,000,000 by James L. Ross, room 43, 20 King Street East; Arthur B. Mortimer, Arthur W. Holmsted and others to forge and manufacture iron and steel products machinery, etc.

The Locke-Wade Co., Ltd., Welland, Ont., has been incorporated with a capital stock of \$40,000 by Owen M. Wade, Robert W. Locke, Alfred Wade and others to manufacture automobiles, accessories, tools, etc.

The Canadian Tilsoil Farm Motors, Ltd., Montreal, has been incorporated with a capital stock of \$100,000 by Francis G. Bush, George R. Drennan, William P. Creagh and others to manufacture farm machinery and tools.

The Anglo-American Motors, Ltd., Toronto, has been incorporated with a capital stock of \$10,000,000 by John P. Ebbs, Duncan R. Kennedy, Edward R. Jackson and others, all of Ottawa, to manufacture automobiles, motors, etc.

The structural steel plant of the Reid & Brown foundry, 63 Esplanade Street, Toronto, was recently damaged by fire with a loss to the building of \$30,000 and the contents, \$20,000. Considerable machinery and patterns were destroyed. Hugh S. Reid, secretary-treasurer, states that the company will rebuild immediately.

The site purchased on the Indian Reserve at Sarnia, Ont., last fall by the Willis-Lee Auto Corporation is being prepared for the erection of its new \$3,000,000 plant.

The H. Mueller Mfg. Co., Ltd., Sarnia, Ont., has been granted permission to increase its capital stock from \$500,000 to \$1,200,000. It will also extend its business to include an iron and brass foundry and other lines.

Government Purchases

WASHINGTON, March 15.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, schedule 5751, for 1 welding outfit and 1 bench drill for Puget Sound, opening April 2; schedule 5759, for 1 milling machine for Washington, opening March 30; schedule 5760, for 1 engine lathe, and 5761, for 4 grinding machines, all for Newport, openings March 30; schedule 5762, for 200 electric motors, 5770, for 1 engine lathe, and 5767, for 9 bench lathes, all for Newport, openings March 26.

NEW TRADE PUBLICATIONS

Universal Tool Grinder.—Gisholt Machine Co., 30 Church Street, New York. Folder. Illustrations showing the company's universal tool grinder grinding the more difficult tools, such as tool bits, flat and bent tools.

Machine for Determining Resistance to Abrasion.—Holz & Co., Inc., 17 Madison Avenue, New York. Bulletin 4. Describes a machine for determining the resistance of metals and alloys to abrasion. It is of the universal type for tests on rolling or sliding surfaces, dry or lubricated, under variable speeds and pressures.

Oil Separator.—Griscom-Russell Co., 90 West Street, New York. Bulletin 1120. Illustrations and descriptions of the Stratton Jr. oil separator for the separation of oil from exhaust steam. The volatile oil gas is condensed into a liquid by a curtain of water, which is thrown across the inside of the throat of the separator by a spray nozzle located in the center of the inlet steam passage.

Tool and Alloy Steels.—Duke Steel Co., Inc., 191 Pearl Street, New York. Catalog of tool and alloy steels in bars, billets, blocks, disks, rings and special shapes. Useful information on forging, hardening and tempering, classification of extras, table of weights, hardening colors and temper colors with temperature equivalents, etc., are included.

Drop Forged Tools.—H. D. Smith & Co., Plantsville, Conn. Catalog 25. Illustrates and describes a line of drop forged tools including such items as chisels, wire cutters, drawing knives, hammers, hatchets, lineman's climbers, nippers, pliers, punches, screw drivers, valve spring lifters, wrenches, etc.

Electricity in Metallurgical and Chemical Industries.—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Circular 7176, 48 pages, 8½ x 11 in. Concerned with applications of electricity to the metallurgical and chemical industries, including electric furnaces for steel refining, heat treating and tempering, sherardizing, smelting of brass and other non-ferrous alloys; carbide and ferro-alloy furnaces; transformers, motors, rotary conveyors, application of electricity in dye, phosphate, potash and coke plants; atmospheric fixation of nitrogen; recovery of materials by Cottrell process, and power plant and distributing equipment. The bulletin is illustrated.

Centrifugal Pumps.—De Laval Steam Turbine Co., Trenton, N. J. Catalog with the title "High Efficiency Centrifugal Pumps," describes official tests made by the City of Minneapolis upon a 20-in. De Laval centrifugal pump driven by an induction motor, and similar tests made by the City of St. Paul upon two 12-in. De Laval centrifugal pumps driven by synchronous motors.

Hardening and Tempering Furnaces.—W. S. Rockwell Co., 50 Church Street, N. Y. Two bulletins. Bulletin 209 is devoted to automatic hardening and tempering furnaces for large bars, castings, axles, etc., also for miscellaneous small parts. Bulletin 211 treats of a saw hardening furnace. The bulletins are illustrated.

Polyphase Motors.—Wagner Electric Mfg. Co., St. Louis. Bulletin 122. Descriptions and illustrations of a polyphase motor, squirrel cage polyphase induction motor, a squirrel cage motor induction starter, and a wound rotor or slip ring type motor.

Pickling and Washing Machine.—Howard Iron Works, Buffalo, N. Y. Pamphlet. Gives a brief history and description, and explains the operation of the company's metal goods pickling and washing machine, which can be operated either with compressed air or steam. One page is devoted to a heavy double head facing and boring machine, and a list of other machinery manufactured by the company.

Data and Information on Heating Problems.—Trane Co., La Crosse, Wis. Bulletin 11 with the title "Trane Data." A booklet of practical information for engineers and contractors. It describes the Trane system of vapor heating and gives technical data in connection with the system itself and Trane vapor heating specialties, also data on radiation, boilers, chimneys, sizes, etc.

Master Gage Blocks.—Wilton Tool & Mfg. Co., 84 Linden Park Street, Boston, Mass. Catalog 24. Illustrations and descriptions of master blocks which are explained as constituting a complete equipment of standards. The blocks with accessories are for use in laying out, measuring and inspection work. They are guaranteed to an accuracy to within 1/100,000th of an inch.

Steam Ash Conveyors.—American Steam Conveyor Corporation, 326 W. Madison Street, Chicago. Folder. Reproductions of trademarks of companies using American steam ash conveyors.

OFFICE CHANGES

The Columbus Engineering Service Co., Columbus, Ohio, representing machine tool manufacturers in Dayton, Toledo, Cleveland and Columbus, Ohio, has opened offices at 417 Valentine Building, Toledo, in charge of A. H. Hooper, who will handle the Toledo and Michigan territory. Mr. Hooper was formerly with the engineering department of the Studebaker Corporation, Detroit, and later head of the Hooper Engineering Co.

Manning, Maxwell & Moore, Inc., 119 West Fortieth Street, New York, has incorporated a new concern, which will be known as Western Manning, Maxwell & Moore, Inc., and will open a store in San Francisco at 40-42 Fremont Street. C. H. Overkamp will be western manager.

Ford of France, Inc., New York, exporter and importer, has been appointed sole export agent for the Detroit Hexagon Drill Co., manufacturer of hexagon and square hole drills.

The Penn-Seaboard Steel Corporation and the Admiral Anchor Co. have removed their New York offices from 111 Broadway to 2 Rector Street.

The Acme Storage Battery Corporation recently changed its office from Highland, N. Y., to 19 Main Street, Poughkeepsie, N. Y.

The Fougner Concrete Steel Co., 29 Broadway, New York, has opened an office at 721 Main Street, Hartford, with W. A. N. Scott in charge. During the past four years, Mr. Scott represented the Detroit Steel Products Co. in the Connecticut territory.

The Wagner Electric Mfg. Co., St. Louis, announces the removal of its Buffalo office to 16 Carlton Street, and the opening of a service station at the same address. Alfred W. Baldwin, who has been connected with the company for a number of years, is in charge as branch manager.

The general office of the Yale & Towne Mfg. Co., locks, etc., has been transferred from 9 East Fortieth Street, New York, to Stamford, Conn., for the purpose of having the selling department in closer touch with the manufacturing department. An office will be maintained at the old New York address, however. The company employs about 4000 hands.

The M. A. Palmer Steel Co. has leased for a long term of years the entire building at 383 to 385 Atlantic Avenue, Boston. The building is five stories, covers an area of 1970 sq. ft., and runs through to Purchase Street, on which is an entrance.

The Van Norman Machine Tool Co., Springfield, Mass., has moved its New York sales office from 320 Fifth Avenue to Room 1856, 50 Church Street, with J. D. Appar in charge.

The office of Corin Brothers, Inc., 906 Finance Building, Philadelphia, has been changed to Grand Central Palace, New York.

In order to look after its business in California, Arizona, Nevada, and the State of Sonora, Mexico, the Jeffrey Mfg. Co. has opened a branch office in Los Angeles, Cal., in charge of F. R. Field, who has been manager of its Denver office.

The American Malleables Co., on account of increasing volume of business in the automotive field, has transferred the general sales office of the company to 1409 Kresge Building, Detroit, in charge of F. G. Smith, vice-president and sales manager. All matters relating to sales, service and production will be handled through this office.

The Liberty Steel Products Co., First National Bank Building, Pittsburgh, dealer in iron and steel products and track supplies for the domestic trade, has discontinued its Cleveland office.

The Cleveland office of the Chase Metal Works and Chase Rolling Mill Co., Waterbury, Conn., at 310 Engineers' Building, is now occupied by W. B. Fairfield and C. K. Lenz. The sale of brass, bronze, copper and nickel-silver rod, wire, sheet, brazed and seamless tubing in the States of Ohio, Indiana and Michigan will be in their hands.

The general sales and service business of the American Malleables Co. will hereafter be conducted from new offices in the Kresge Building, Detroit. P. G. Smith, vice-president, will be in charge of operations.

The Electric Furnace Co., Alliance, Ohio, has just opened a Middle Western office at 301 Frisco Building, St. Louis, Mo., in charge of W. E. Prosser. The increasing demand for Bailly electric furnaces for melting non-ferrous metals made this step necessary, inasmuch as there are at present 60 units of this type in operation within a radius of 500 miles of St. Louis alone.

Current Metal Prices

On Small Lots, from Merchants' Stocks, New York City

The quotations given below are for small lots, as sold from stores in New York City by merchants carrying stocks.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipment in carload lots from mills, these prices are given for their convenience.

On a number of articles the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general headings of "Iron and Steel Markets" and "Metal Markets."

Iron and Soft Steel Bars and Shapes

Bars:	Per lb.
Refined iron, base price	4.50c.
Swedish bars, base price	20.00c.

Soft Steel

$\frac{3}{4}$ to 1 $\frac{1}{2}$ in., round and square	3.52c. to 4.25c.
1 to 6 in. x $\frac{3}{8}$ to 1 in.	3.52c. to 4.25c.
1 to 6 in. x $\frac{1}{4}$ to 5/16	3.62c. to 4.35c.
Rods— $\frac{3}{8}$ and 11/16	3.57c. to 4.05c.
Bands—1 $\frac{1}{2}$ to 6 by 3/16 to No. 8.....	4.22c. to 5.32c.
Hoops	4.47c. to 5.57c.

Shapes:

Beams and channels—3 to 15 in.	3.47c. to 4.25c.
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Angles:

3 in. x $\frac{1}{4}$ in. and larger	3.47c. to 4.25c.
3 in. x 3/16 in. and $\frac{1}{8}$ in.	3.72c. to 4.60c.
1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ in. x $\frac{1}{8}$ in.	3.52c. to 4.40c.
1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ in. x 3/16 in. and thicker.	3.47c. to 4.35c.
1 to 1 $\frac{1}{4}$ in. x 3/16 in.	3.52c. to 4.40c.
1 to 1 $\frac{1}{4}$ x $\frac{1}{8}$ in.	3.57c. to 4.45c.
$\frac{7}{8}$ x $\frac{7}{8}$ x $\frac{1}{8}$ in.	3.62c. to 4.50c.
$\frac{3}{4}$ x $\frac{1}{2}$ in.	3.67c. to 4.55c.
$\frac{5}{8}$ x $\frac{1}{2}$ in.	4.07c. to 5.35c.
$\frac{1}{2}$ x 3/32 in.	5.17c. to 6.05c.

Tees:

1 x $\frac{1}{8}$ in.	3.87c. to 4.75c.
1 $\frac{1}{4}$ in. x 1 $\frac{1}{4}$ x 3/16 in.	3.77c. to 4.65c.
1 $\frac{1}{2}$ to 2 $\frac{1}{2}$ x 3/16 in. and thicker ...	3.57c. to 4.45c.
3 in. and larger	3.52c. to 4.30c.

Merchant Steel

	Per lb.
Tire, 1 $\frac{1}{2}$ x $\frac{1}{2}$ in. and larger	3.52c. to 4.25c.
Toe calk, $\frac{1}{2}$ x $\frac{3}{8}$ in. and larger	4.60c. to 4.85c.
Open-hearth spring steel	7.00c.
Standard cast steel, base price.....	15.00c.
Extra cast steel	18.00c. to 20.00c.
Special cast steel	23.00c. to 25.00c.

Tank Plates—Steel

	Per lb.
$\frac{1}{4}$ in. and heavier.....	3.67c. to 4.50c.

Sheets

Blue Annealed

	Per lb.
No. 10	5.07c. to 7.00c.
No. 12	5.12c. to 7.05c.
No. 14	5.42c. to 7.10c.
No. 16	5.52c. to 7.20c.

Box Annealed—Black

	Soft Steel C. R., One Pass, per lb.	Wood's Refined, per lb.
Nos. 18 to 20	6.80c. to 8.80c.	
Nos. 22 and 24	6.85c. to 8.85c.	9.80c.
No. 26	6.90c. to 8.90c.	9.85c.
No. 28	7.00c. to 9.00c.	10.00c.
No. 30	7.10c. to 9.10c.	
No. 28, 36 in. wide, 10c. higher.		

Galvanized

	Per lb.
No. 14	7.25c. to 10.00c.
No. 16	7.50c. to 10.25c.
Nos. 18 and 20	7.65c. to 10.40c.
Nos. 22 and 24	7.80c. to 10.55c.
No. 26	7.95c. to 10.70c.
No. 27	8.10c. to 10.85c.
No. 28	8.25c. to 11.00c.
No. 30	8.75c. to 11.50c.
No. 28, 36 in. wide, 20c. higher.	

Pipe

Standard—Steel

	Blk.	Galv.		Blk.	Galv.
$\frac{1}{2}$ in. Butt... —36	—19		$\frac{3}{4}$ -1 $\frac{1}{2}$ in. Butt	—18	+2
$\frac{3}{4}$ -3 in. Butt. —40	—24		2 in. Lap.....	—9	+9
3 $\frac{1}{2}$ -6 in. Lap. —35	—20		2 $\frac{1}{2}$ -6 in. Lap..	—11	+6
7-12 in. Lap.. —25	—8		7-12 in. Lap...	+2	+20

Wrought Iron

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER

	Per lb.
Bright basic	8.00c.
Annealed soft	8.00c.
Galvanized annealed	8.50c.
Coppered basic	8.50c.
Tinned soft Bessemer	10.00c.

*Regular extras for lighter gages.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High Brass Sheet	28 $\frac{1}{4}$ c. to 29 $\frac{1}{2}$ c.
High Brass Wire	28 $\frac{1}{4}$ c. to 29 $\frac{1}{2}$ c.
Brass Rod	26 $\frac{1}{4}$ c. to 29 c.
Brass Tube	42 $\frac{1}{2}$ c. to 44 $\frac{1}{2}$ c.

Copper Sheets

Sheet copper, hot rolled, 24 oz., 29 $\frac{1}{2}$ c. per lb. base.	
Cold rolled, 14 oz. and heavier, 2c. per lb. advance over hot rolled.	

Tin Plates

Bright Tin	Grade	Grade	Coke—14x20	Primes	Wasters
	"AAA"	"A"	80 lb...	\$9.80	\$9.55
	Charcoal	Charcoal	90 lb...	9.90	9.65
	14x20	14x20	100 lb...	10.00	9.75
1C...	\$15.00	\$13.00	1C...	10.25	10.00
1X...	17.25	15.00	1X...	11.25	11.00
1XX...	19.00	16.75	1XX...	12.25	12.00
1XXX...	20.75	18.50	1XXX...	13.25	13.00
1XXXX...	22.25	20.25	1XXXX...	14.25	14.00

Terne Plates

100 lb.	8-lb Coating 14x20	\$9.35
IC		9.50
IX		10.50
Fire door stock		12.75

Tin

Straits pig	65c.
Bar	70c. to 80c.

Copper

Lake ingot	21c. to 22c.
Electrolytic	20c. to 21c.
Casting	19 $\frac{1}{2}$ c. to 20c.

Spelter and Sheet Zinc

Western spelter	10 $\frac{1}{2}$ c. to 11 $\frac{1}{2}$ c.
Sheet zinc, No. 9 base, casks	14c. open 14 $\frac{1}{2}$ c.

Lead and Solder*

American pig lead	10 $\frac{1}{4}$ c. to 11 $\frac{1}{4}$ c.
Bar lead	11 $\frac{1}{4}$ c. to 11 $\frac{1}{2}$ c.
Solder $\frac{1}{2}$ and $\frac{1}{2}$ guaranteed	43c.
No. 1 solder	40c.
Refined solder	36c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	90c.
Commercial grade, per lb.	50c.

Antimony

Asiatic	12 $\frac{1}{4}$ c. to 12 $\frac{1}{2}$ c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb....	35c. to 38c.
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Old Metals

Lead has been the strong factor this week, the other items being dull and slightly lower. Dealers' buying prices are as follows:

	Cents Per lb.
Copper, heavy and crucible	16.75
Copper, heavy and wire	16.00
Copper, light and bottoms	14.50
Brass, heavy	10.50
Brass, light	7.75
Heavy machine composition	15.75
No. 1 yellow brass turnings	9.75
No. 1 red brass or composition turning	12.75
Lead, heavy	8.00
Lead, tea	6.00
Zinc	5.50

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